

Roll No.

Total No. of Pages: 01

Total No. of Questions: 07

B.Sc. CS, Semester- 1st
PROBLEM SOLVING USING C

Subject Code: 25C2CSU-101 / UGCA1903

M. Code: 96527 | 92571

Date of Examination: 19-05-2026

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** consists of **SIX** questions, carrying **TEN** marks each and student have to attempt any **FOUR** questions.

Q. No.	Question	Course Outcome	Bloom's Level
SECTION-A			
1.	Answer briefly:		
a.	Define pseudo code in C.	CO-1	L1
b.	Classify operators in C.	CO-1	L2
c.	Define do-while statement in C.	CO-2	L1
d.	Explain the purpose of the scanf() function with syntax.	CO-2	L2
e.	What do you mean by identifiers?	CO-1	L1
f.	What is the purpose of the return statement in a function?	CO-3	L1
g.	Illustrate how is an array declared in C? Give an example.	CO-3	L2
h.	What is the difference between structure and union?	CO-4	L1
i.	Explain how is typedef used in C? Give one example.	CO-4	L2
j.	Compare one-dimensional and multi-dimensional arrays.	CO-3	L2
SECTION-B			
2.	Build the structure of a simple C program and explain each component.	CO-1	L3
3.	Explain the difference between entry-controlled and exit-controlled loops.	CO-2	L5
4.	Classify functions and explain their advantages in structured programming.	CO-3	L4
5.	Explain dynamic memory allocation using malloc(), calloc(), and free().	CO-4	L5
6.	Construct the working of break and continue statements with examples.	CO-2	L3
7.	Examine how arrays are declared, initialized, and processed in C.	CO-3	L4

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.

11M- 96527 / 92571

Total No. of Pages: 01

B.Sc. CS, Semester-1st

Subject Code: BTHU103-18 / 25C2 CCU-103

Date of Examination: 07-05-2026

Max. Marks: 60

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

Q. No.	Question	Course Outcome	Bloom's Level
SECTION-A			
1.	Answer briefly:		
a.	Define effective communication.	CO1	L1
b.	List any two modes of communication.	CO1	L1
c.	Differentiate between verbal and non-verbal communication.	CO2	L2
d.	Explain any two barriers to communication.	CO5	L2
e.	Find out the importance of listening in communication.	CO4	L1
f.	List any two tools of modern communication.	CO3	L1
g.	What is meant by "gist of a passage"?	CO4	L1
h.	Illustrate note-making.	CO5	L2
i.	Infer why vocabulary building is important.	CO2	L2
j.	Identify any two uses of comprehension exercises.	CO3	L2
SECTION-B			
2.	Critique the relevance of listening in effective communication and in your career journey.	CO1	L5
3.	Classify various flow of communication and its uses.	CO2	L4
4.	Examine the components of communication process, with example.	CO2	L4
5.	Evaluate the importance of presentation skills in getting placed in a renowned company.	CO3	L5
6.	Analyze different barriers to communication, with examples.	CO5	L3
7.	Justify the need for effective feedback in leadership roles .	CO4	L5

1|M-92575

B.Sc-CS, Semester-1st
HUMAN VALUE, DE ADDICTION AND TRAFFIC RULES

M.Code: 96529
Date of Examination: 15-05-2026

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
SECTION-B consists of SIX questions, each carrying TEN marks each and student has to attempt any FOUR questions.

Q. No.	Question	CO	BL
SECTION-A			
1.	Answer briefly:		
a.	List three examples of empathy. ਸਹਾਨੁਮੁਖੀ ਕੇ ਤੀਨ ਉਦਾਹਰਣ ਲਿਖਿਓ। ਹਮਦਰਦੀ ਦੀਆਂ ਤਿੰਨ ਉਦਾਹਰਣਾਂ ਦੱਸੋ।	CO-1	L1
b.	State the meaning of Suvidha. ਸੁਵਿਧਾ ਦਾ ਅਰਥ ਦੱਸੋ।	CO-2	L1
c.	Explain the term harmony in I with an example. "ਮੈਂ" ਮੇਂ ਸਾਮਾਂਜਸਯ ਸ਼ਬਦ ਕੀ ਏਕ ਉਦਾਹਰਣ ਸਹਿਤ ਸਮਝਾਓ। "ਮੈਂ" ਵਿੱਚ ਇਕਸੁਰਤਾ ਸ਼ਬਦ ਨੂੰ ਇੱਕ ਉਦਾਹਰਣ ਦੇ ਕੇ ਸਮਝਾਓ।	CO-2	L2
d.	What do you understand by Samman (respect)? ਸਨਮਾਨ (ਸਤਿਕਾਰ) ਤੋਂ ਤੁਸੀਂ ਕੀ ਸਮਝਦੇ ਹੋ? ਸਮਾਨ (ਅਦਰ) ਸੇ ਆਪਕਾ ਕਥਾ ਗਤਾਰਯ ਹੈ?	CO-3	L1
e.	State the importance of integrity in human value. ਸਾਨਕੀਯ ਮੂਲ੍ਯੋਂ ਮੇਂ ਸਲ੍ਯਨਿਭਾ ਕੇ ਸਹਤ੍ਵ ਕੀ ਬਤਾਓ। ਮਨੁੱਖੀ ਮੁੱਲ ਵਿੱਚ ਇਮਾਨਦਾਰੀ ਦੀ ਮਹੱਤਤਾ ਦੱਸੋ।	CO-1	L2
f.	Interpret a simple example of leadership. ਸਲ੍ਯਨਿਭਾ ਕੇ ਸਹਤ੍ਵ ਕੀ ਕ੍ਯਾਭਯਾ ਕੀਯੋ। ਲੀਡਰਸ਼ਿਪ ਦੀ ਇੱਕ ਸਧਾਰਨ ਉਦਾਹਰਣ ਦੀ ਵਿਆਖਿਆ ਕਰੋ।	CO-4	L1
g.	Differentiate between two types of inclusion. ਸਮਾਵੇਸ਼ਨ ਕੇ ਦੋ ਪ੍ਰਕਾਰੋਂ ਮੇਂ ਅੰਤਰ ਬਤਾਓ। ਦੋ ਕਿਸਮਾਂ ਦੇ ਸਮਾਵੇਸ਼ ਵਿੱਚ ਅੰਤਰ ਦੱਸੋ।	CO-4	L2
h.	Classify Sah-astiva in your own words. ਸਹ-ਅਸ਼ਿਤ੍ਵ ਕੀ ਅਪਨੇ ਸ਼ਬਦੋਂ ਮੇਂ ਵਰ੍ਗੀਕ੍ਰਿਤ ਕੀਯੋ। ਆਪਣੇ ਸ਼ਬਦਾਂ ਵਿੱਚ ਸਹ-ਅਸਤਿਤਵ ਦਾ ਵਰਗੀਕਰਨ ਕਰੋ।	CO-3	L2
i.	Summarize the role of ethical consumption in the workplace. ਕਾਰ੍ਯਸਥਲ ਮੇਂ ਨੈਤਿਕ ਉਪਭੋਗ ਕੀ ਭੂਮਿਕਾ ਕਾ ਸਾਰਾਂਸ਼ ਦੀਯੋ। ਕਾਰਜ ਸਥਾਨ ਵਿੱਚ ਨੈਤਿਕ ਖਪਤ ਦੀ ਭੂਮਿਕਾ ਦਾ ਸਾਰ ਦਿਓ।	CO-4	L2

j.	Name any two activities of the 'I' मै की कहीं दो गतिविधियों के नाम बताइए। मै दीआ किसे दी दे गडीविधीआं दे नाम दैसे।	CO-2	L1
SECTION-B			
2.	Explain whether physical facilities alone can ensure happiness. यह स्पष्ट कीजिए कि क्या केवल भौतिक सुविधाएं ही सुख सुनिश्चित कर सकती हैं। दैसे कि की सिरढ भौतिक सगुलतां ही खुशी यकीनी बटा सकदीआं हन।	CO-2	L5
3.	Utilize detailed points the significance of honesty in modern society. आधुनिक समाज में ईमानदारी के महत्व को विस्तार से समझाते हुए विस्तृत बिंदुओं का उपयोग करें। आधुनिक समाज विंच ईमानदारी दी महत्ता बावे विसृज्ज नुक्तिआं दी वरउते करे।	CO-1	L3
4.	Analyze how the imbalance between 'I' and 'Body' can cause unhappiness. विश्लेषण कीजिए कि 'मै' और 'शरीर' के बीच असंतुलन कैसे दुख का कारण बन सकता है। विसलेसत करे कि 'मै' अउ 'सरीर' विसवार असंतुलन किदें दुधी रे सकदा है।	CO-2	L4
5.	Identify what happen in relationship when there is a lack of trust. रिखते में विश्वास की कमी होने पर क्या होता है, इसे पहचानें। जदें रिस्ते विंच विसवास दी कमी हुंदी रे तां की हुंदा है, एस बावे साटें।	CO-3	L3
6.	Interpret the impact of social responsibility on ethical behavior. नैतिक व्यवहार पर सामाजिक उत्तरदायित्व के प्रभाव का मूल्यांकन कीजिए। नैतिक विसवार 'उ' समाजिक जिमेवारी दे पुढाव दा मूलांकन करे।	CO-4	L5
7.	Classify four element of nature - Plant, Animal, Water, Air and Soil contributor to maintaining overall harmony. प्रकृति के चार तत्वों - पौधे, जीव, जल, वायु और मिट्टी - का वर्गीकरण करें, जो समग्र सामंजस्य बनाए रखने में योगदान करते हैं। खुदरत दे चार उंतां दा वरगीकरन करे - पंसा, जानवर, पाटी, हवा अउ मिटी जे समुंजी सदभावना बटाही रंथत विंच येगदान पाउंदे हन। है।	CO-4	L4

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Total No. of Questions: 07

B.Sc.CS/B.Sc. (AIML), Semester- 1st

MATHEMATICS

Subject Code: 25C2CCU-101

M.Code: 96542

Date of Examination: 04-05-2026

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 consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q. No.	Question	CO	BL
SECTION-A			
1.	Answer briefly:		
a.	Define order or cardinal number of finite set.	CO-1	L1
b.	Write the following sets in roaster form: $A = \{x \in \mathbb{N} : x^2 = 25\}$ $B = \left\{x \in \mathbb{R} : \frac{x-2}{x-3} = 2\right\}.$	CO-1	L2
c.	Describe the set $A = \{1/2, 1/4, 1/6, 1/8, 1/10, \dots\}$ in the set builder form.	CO-1	L2
d.	Define bi-conditional statement with a suitable truth table illustration.	CO-2	L1
e.	Differentiate Exclusive-OR and disjunction.	CO-2	L2
f.	If statements p: I like tennis q: I like football then, what does $\sim p \wedge \sim q$ stands for?	CO-2	L2
g.	Recall triangular matrices and its types.	CO-3	L1
h.	Is $AB=BA$ always true for matrices A and B? If not, give a counter example.	CO-3	L2
i.	What is geometric progression?	CO-4	L1
j.	Insert 5 geometric means between 3 and 192.	CO-4	L2
SECTION-B			
2.	(i) Prove that if $A \subset B$, then $A \cup B = B$ and $A \cap B = A$ (ii) If A, B and C are any sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$ show that $B = C$.	CO1	L3
3.	Evaluating the argument for validity: If the product is expensive, it is high quality. The product is not high quality. Therefore, the product is not expensive.	CO2	L5
4.	If $A = \begin{bmatrix} 1 & -2 & 0 \\ 2 & 1 & 3 \\ 0 & -2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 7 & 2 & -6 \\ -2 & 1 & -3 \\ -4 & 2 & 5 \end{bmatrix}$ then find BA. Apply the obtained result to solve $x-2y=9$, $2x+y+3z=8$, $-2y+z=7$.	CO3	L3
5.	If $x = 1 + a + a^2 + \dots \infty$, $y = 1 + b + b^2 + \dots \infty$ then analyse the values of x and y to prove that $1 + ab + a^2b^2 + \dots \infty = \frac{xy}{x+y-1}$.	CO4	L4
6.	Inspect for the values of x, y, z if $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ obeys the law $A^T A = I$.	CO3	L4
7.	Find sum up to n terms: $0.4+0.44+0.444+\dots$	CO4	L5

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Total No. of Questions: 7

Date : 13-05-2026
Total No. of Pages: 2

BSc (Cyber Security), Semester-2nd
Subject Name: FUNDAMENTALS OF CYBER SECURITY
Subject Code: 25C2CSU-201 / UGCA 1971
M. Code: / 91716

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Define the basic principles of computer ethics.	CO-1	L1	2
1.b.	Explain why digital communication systems require security controls.	CO-1	L2	2
1.c.	Discuss how cloud computing has influenced cybersecurity practices.	CO-1	L2	2
1.d.	Name different tools used for handling cyber security incidents.	CO-2	L1	2
1.e.	State why public Wi-Fi networks are risky.	CO-2	L2	2
1.f.	Explain the role of encryption in data security.	CO-2	L2	2
1.g.	What is the purpose of the IT Act?	CO-3	L1	2
1.h.	Describe the mechanisms through which phishing attacks are executed.	CO-3	L2	2
1.i.	State four differences between a debit card and a credit card.	CO-4	L1	2
1.j.	Describe the role of email security practices in preventing cyber threats.	CO-4	L2	2
SECTION B				40
2.	Distinguish the methods used by antivirus software to detect and remove malware.	CO-1	L4	10
3.	Compare the strengths and limitations of cyber security laws in India in controlling cyber crimes.	CO-2	L5	10
4.	Use two-factor authentication methods in real-life scenarios and evaluate their effectiveness in preventing unauthorized access.	CO-2	L3	10
5.	Examine the potential threats and vulnerabilities in digital wallet and UPI transactions.	CO-4	L4	10
6.	Simplify firewall rules and their role in protecting networks from cybersecurity threats.	CO-4	L4	10
7.	Explain the effectiveness of web application security frameworks in preventing vulnerabilities.	CO-4	L5	10

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Roll No. Date : 05-05-2026
Total No. of Pages: 2

Total No. of Questions: 7

BSc (Cyber Security), Semester-2nd
Subject Name: OBJECT ORIENTED PROGRAMMING USING C++
Subject Code: 25C2CSU-202 E2

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	State the advantage and disadvantage of Object Oriented Programming?	CO-1	L1	2
1.b.	Illustrate header files used in C++ programming language.	CO-1	L2	2
1.c.	Write the concept of modern Object Oriented Programming language?	CO-1	L1	2
1.d.	Briefly explain member functions in Object Oriented Programming.	CO-2	L2	2
1.e.	Which are the basic features of OOP?	CO-3	L1	2
1.f.	Explain compile-time polymorphism and run-time polymorphism.	CO-3	L2	2
1.g.	Relate Object Oriented Programming with real-world objects.	CO-4	L1	2
1.h.	State the purpose and types of constructors in C++.	CO-4	L2	2
1.i.	Draw the simple diagram of hierarchical inheritance.	CO-5	L1	2
1.j.	Differentiate between Procedure Oriented Language (C) and Object-Oriented Language.	CO-5	L2	2
SECTION B				40
2.	Compare default and parameterized constructors, and assess which method initializes objects more effectively in simple C++ programs.	CO-3	L5	10
3.	Explain dynamic initialization of objects in C++ with suitable example program.	CO-3	L5	10
4.	Compare the differences between function overriding and function overloading with respect to polymorphism.	CO-5	L4	10
5.	Evaluate file handling operations (opening, reading, writing, closing) and determine their importance in real-world applications.	CO-3	L5	10
6.	Justify the usefulness of abstract classes in large object-oriented programs and evaluate how they support code reusability and standardization.	CO-3	L5	10
7.	Explore how ambiguity can occur in operator overloading and suggest methods to avoid such situations.	CO-5	L4	10

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Total No. of Pages: 01

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B.Sc. (CYBER SECURITY), Semester-3rd

COMPUTER NETWORKS

Subject Code: UGCA 1913

M.Code: 92750

Date of Examination: 05-05-2026

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 consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q. No.	Question	Course Outcome	Bloom's Level
SECTION-A			
1.	Answer briefly:		
a.	Define analog transmission.	CO1	L1
b.	Explain why packet switching is efficient for data networks.	CO1	L2
c.	Define PPP (Point-to-Point Protocol).	CO2	L1
d.	Explain the concept of time-division multiplexing (TDM).	CO2	L2
e.	Define message switching.	CO3	L1
f.	Explain the Hybrid topology and its advantages.	CO3	L2
g.	List the types of routing algorithms.	CO4	L1
h.	Explain how internetworking devices enable communication between networks.	CO4	L2
i.	What is the Application Layer?	CO5	L1
j.	Explain the role of DNS in mapping domain names to IP addresses?	CO5	L2
SECTION-B			
2.	Apply network topologies (bus, star, ring) to a small office scenario and explain which is most suitable.	CO1	L3
3.	Simplify the concept of layered architecture to explain how communication happens between two computers using the OSI model.	CO2	L4
4.	Evaluate whether TCP or UDP is better suited for time-sensitive data applications.	CO4	L5
5.	Compare telephone lines, coaxial cables, and optical fibre for network reliability and efficiency.	CO3	L5
6.	Apply addressing in the transport layer to show how multiple processes communicate simultaneously.	CO4	L3
7.	Analyze the role of DNS caching in reducing web page loading times.	CO5	L4

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Total No. of Pages: 01

Total No. of Questions: 07

B. Sc (Data Analytics)/B.Sc. (CYBER SECURITY), Semester-3rd

DATA STRUCTURES

Subject Code: UGCA 1915

M.Code: 92554/92752

Date of Examination: 12-05-2026

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** consists of **SIX** questions, carrying **TEN** marks each and student have to attempt any **FOUR** questions.

Q. No.	Question	Course Outcome	Bloom's Level
SECTION-A			
1.	Answer briefly:		
a.	Define function in any programming language.	CO1	L1
b.	Explain recursion with a suitable example.	CO1	L2
c.	List any two applications of stack.	CO2	L1
d.	Explain input restricted queue with the help of example.	CO2	L2
e.	What is a head pointer in a linked list?	CO3	L1
f.	Compare array and linked list.	CO3	L2
g.	Define merge sort with the help of an example.	CO4	L1
h.	Illustrate the term "collision in hashing".	CO4	L2
i.	What do you mean by flowchart?	CO5	L1
j.	Classify different types of data structures.	CO5	L2
SECTION-B			
2.	Construct C++ program to perform addition of two matrices using two-dimensional arrays.	CO1	L3
3.	Analyse different advantages and disadvantages of array also explain its types.	CO2	L4
4.	Explain string and different library functions of string with the help of an example.	CO2	L5
5.	Explain graph data structure and its types with the help of suitable examples.	CO3	L5
6.	Identify the process of quick sort. Apply the concept by taking an example.	CO4	L3
7.	Examine static and dynamic memory allocation with respect to the different types of data structures and give examples.	CO5	L4

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Total No. of Pages: 1

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B.Sc. CS, Semester-3rd

ETHICAL HACKING

Subject Code: UGCA1988

M.Code: 92753

Date of Examination: 14-05-2026

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** consists of **SIX** questions; carrying **TEN** marks each and student have to attempt any **FOUR** questions.

Q. No.	Question	CO	BL
SECTION-A			
1.	Answer briefly:		
a.	What is the purpose of Exploit in Ethical Hacking?	CO-1	L1
b.	Explain the role of security in Ethical Hacking.	CO-1	L2
c.	Classify the purpose of TOE (Target of Evaluation) with the help of real world examples.	CO-1	L2
d.	What is the use of WHOIS lookup?	CO-2	L1
e.	Compare the role of active fingerprinting and passive fingerprinting.	CO-2	L2
f.	Explain the methodology of the Hackers.	CO-2	L2
g.	Names any two tools used for DNS enumeration.	CO-3	L1
h.	Differentiate the role of ICMP scan and FIN scan in ethical hacking.	CO-3	L2
i.	How to implement the process of keystroke logger (keylogger)?	CO-4	L1
j.	Define the term of wireless network sniffing.	CO-4	L1
SECTION-B			
2.	Use the concepts of DNS with its types that used in ethical hacking.	CO1	L3
3.	Identify the role of TCP with any three common TCP ports that provide the service in ethical hacking.	CO1	L3
4.	Classify various types of Hackers, Why should organizations hire ethical hackers?	CO2	L4
5.	Analyze the concept of passive and active footprinting with two advantages and disadvantages.	CO3	L4
6.	Explain the meaning of information gathering in ethical hacking and IP WHOIS in Footprinting.	CO3	L5
7.	Determine the relationships between key management, authentication, and encryption in establishing secure wireless communication	CO4	L5

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Total No. of Pages: 01

Total No. of Questions: 07

B.Sc. CS, Semester-3rd

MATHEMATICAL FOUNDATIONS FOR CRYPTOGRAPHY

Subject Code: UGCA1987

M.Code: 92751

Date of Examination: 08-05-2026

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 consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q. No.	Question	CO	BL
SECTION-A			
1.	Answer briefly:		
a.	State Fermat's Little Theorem.	CO-1	L1
b.	Explain Linear congruence with an example.	CO-1	L2
c.	Find the gcd of 168 and 180.	CO-1	L1
d.	Define a group with an example.	CO-2	L1
e.	Explain the concept of the field.	CO-2	L2
f.	Construct the composition table for Z_5 under addition.	CO-2	L3
g.	Interpret 25 and 15 in binary form.	CO-3	L1
h.	What does bitwise OR do?	CO-3	L1
i.	Define cryptanalysis with its purpose.	CO-4	L1
j.	Outline privacy in the context of information security.	CO-4	L2
SECTION-B			
2.	Examine all solutions to the system of congruences (using CRT): $x \equiv 2 \pmod{3}$, $x \equiv 3 \pmod{5}$, $x \equiv 2 \pmod{7}$.	CO1	L4
3.	Give an example of a ring and explain the steps that how it forms a ring.	CO2	L5
4.	Explain the concept of binary arithmetic operation. Perform binary addition and subtraction for $(1101)_2$ and $(1011)_2$.	CO3	L5
5.	Given $A = 45$, $B = 27$, $C = 12$. Simplify $R = (A B) - (B \& C)$.	CO3	L4
6.	(a) Analyse the concept of cryptography to demonstrate how it is used in real-life daily applications. (b) Examine the necessity of combining symmetric and asymmetric encryption in secure communication systems, and differentiate their roles in enhancing overall security.	CO4	L4
7.	Explain the role of keys, ciphers, and cryptanalysis in maintaining confidentiality and privacy.	CO4	L5

Note: Disclosure of Identify by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the students

Total No. of Pages: 01

B.Sc. (Cyber Security/Data Analytics), Semester-3rd

Subject Code: UGCA1914

Date of Examination: 16-05-2026

Max. Marks: 60

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** consists of **SIX** questions, each carrying **TEN** marks each and student has to attempt any **FOUR** questions.

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.

Roll No.

Total No. of Questions: 7

Date : 14-05-2026
Total No. of Pages: 2BSc (Cyber Security), Semester-4th
Subject Name: CYBER LAWS AND IPR
Subject Code: UGCA1949 E2
M. Code : 93439

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Explain the relationship between statutory law and regulatory law in the context of IT professionals.	CO-1	L1	2
1.b.	Outline the role of the IT Act, 2000 in regulating cyber activities in India.	CO-1	L2	2
1.c.	What is identity theft and explain how it is committed online.	CO-2	L1	2
1.d.	Explain digital forgery with a real-world example and its legal implications.	CO-2	L2	2
1.e.	Define invention in the context of patent law and explain its importance in innovation.	CO-3	L1	2
1.f.	Describe the benefits of IPR in promoting innovation and protecting creators' rights.	CO-3	L2	2
1.g.	Compare copyright protection with trademark protection in terms of duration and subject matter.	CO-4	L1	2
1.h.	Define fair use and explain how copyrighted material can be used legally under certain conditions.	CO-4	L1	2
1.i.	Explain the step-by-step process of granting a patent.	CO-3	L2	2
1.j.	Define service mark and explain how it differs from a trademark.	CO-4	L1	2
SECTION B				40
2.	Apply the concept of jurisdiction to an online fraud case and explain how courts determine their authority when the offender and victim are located in different geographical regions.	CO-1	L3	10
3.	Compare and contrast cyber crimes against individuals and institutions with suitable examples and legal implications.	CO-2	L4	10
4.	Discuss and justify the important role of copyright in the protection of software, explaining how copyright law safeguards computer programs, source code, and digital applications.	CO-4	L5	10
5.	Justify and analyze different types of trademarks, and evaluate their usefulness in protecting brand identity.	CO-4	L5	10
6.	Critically assess the limitations and challenges of copyright protection in the digital era, particularly in relation to online content sharing, digital reproduction, and unauthorized distribution of creative works.	CO-4	L5	10
7.	Elaborate the related rights in musical performance and explain legal protection.	CO-5	L6	10

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.

Roll No.

Date : 04-05-2026

Total No. of Questions: 7

Total No. of Pages: 2

BSc (Cyber Security), Semester-4th
Subject Name: DATABASE MANAGEMENT SYSTEM
Subject Code: UGCA1922 E2
M. Code: 93436

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	What is an Attribute in the Entity-Relationship (ER) model?	CO-1	L1	2
1.b.	Explain the advantages of a Database Management System (DBMS) over the traditional file system approach in data management.	CO-1	L2	2
1.c.	State the features of the relational data model.	CO-1	L2	2
1.d.	List the components of an SQL query.	CO-2	L1	2
1.e.	Compare DCL and TCL commands based on their functions in database management.	CO-2	L2	2
1.f.	Illustrate the role of aggregate functions in SQL with examples.	CO-2	L2	2
1.g.	What is meant by second Normal Form of normalization?	CO-3	L1	2
1.h.	Illustrate the steps involved in converting a relation into Third Normal Form (3NF).	CO-3	L2	2
1.i.	Define the term integrity constraints in DBMS.	CO-4	L1	2
1.j.	Describe the concept of checkpoint in database recovery.	CO-4	L2	2
SECTION B				40
2.	Make use of Entity-Relationship (ER) modeling to show how entities and relationships are structured in a database.	CO-1	L3	10
3.	Interpret the advantages of PL/SQL over SQL based on their performance and functionality in database systems.	CO-2	L5	10
4.	Construct an Entity-Relationship (ER) model for a real-world scenario and define how entities, attributes, and relationships are related to each other.	CO-1	L3	10
5.	Distinguish between views and base tables by analyzing their structural and functional characteristics.	CO-2	L4	10
6.	Differentiate normalization stages by analyzing the type of redundancy removed at each normal form.	CO-3	L4	10
7.	Explain distributed databases based on their limitations and performance issues.	CO-4	L5	10

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Roll No.

Total No. of Questions: 7

BSc (Cyber Security), Semester-4th
Subject Name: NETWORK SECURITY
Subject Code: UGCA2001 E2
M. Code: 93437

Date : 07-05-2026
Total No. of Pages: 2

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	List any two common names of cyber threats.	CO-1	L1	2
1.b.	Differentiate between Integrity and Availability with their working in security.	CO-1	L2	2
1.c.	Outline the working principle of Linux Firewall with a simple example.	CO-2	L2	2
1.d.	Describe the concept of Asymmetric Cryptography in your own words.	CO-2	L2	2
1.e.	Classify the components of cryptographic attacks.	CO-3	L2	2
1.f.	Explain the role of message digest(MD) in hash algorithms.	CO-4	L2	2
1.g.	List any two types of Intrusion Detection Systems in network security.	CO-4	L1	2
1.h.	Illustrate the basic working of SSL to secure communication.	CO-5	L2	2
1.i.	Compare packet filtering firewall and stateful firewall.	CO-5	L2	2
1.j.	Explain the concept of the Decryption Algorithm that used in network security.	CO-3	L2	2
SECTION B				40
2.	Use the role of attacks in network security with Denial-of-Service (DoS) attacks and Distributed Denial-of-Service (DDoS) with the help of example.	CO-1	L3	10
3.	Analyze the requirements of a secure hash function used in cryptographic systems with its two techniques.	CO-2	L4	10
4.	Explain the role of Monoalphabetic Substitution and Transposition Cipher in network security with suitable examples.	CO-3	L5	10
5.	Explain the different file operations based on their functionalities and analyze their practical applications in network systems.	CO-4	L5	10
6.	Interpret the concept of advanced network security systems and their advantages and limitations in modern computing.	CO-5	L5	10
7.	Determine the effect of digital signature and message authentication techniques used in networks with the role of hash functions.	CO-5	L5	10

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.

Roll No.

Date : 18-05-2026

Total No. of Questions: 7

Total No. of Pages: 2

BSc (Cyber Security), Semester-4th
Subject Name: WEB TECHNOLOGIES

Subject Code: UGCA1927

M. Code: 93442

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Name the comparison operators in JavaScript used to compare two values.	CO-1	L1	2
1.b.	Describe basic concept of cascading style sheets used in DHTML applications.	CO-1	L2	2
1.c.	What is Form object in HTML? Write its role in web forms.	CO-2	L1	2
1.d.	Give a program to set background color of webpage in HTML.	CO-2	L2	2
1.e.	List different elements commonly used inside HTML forms for collecting user input.	CO-3	L1	2
1.f.	Outline the working of submit button in HTML forms with example.	CO-3	L2	2
1.g.	Define arrays in JavaScript and state their purpose in programming.	CO-4	L1	2
1.h.	Compare between map, filter, and reduce. Also give their examples.	CO-4	L2	2
1.i.	Write the HTML tag used to create a table.	CO-5	L1	2
1.j.	Explain the use of image attributes like width, height, and alt in HTML.	CO-5	L2	2
SECTION B				40
2.	Make a program to perform following operations on two numbers input by the user: 1) Addition 2) Subtraction 3) Multiplication 4) Division.	CO-1	L3	10
3.	Analyze the structure of a webpage by combining ordered, unordered, and definition lists. Write their appropriate uses clearly.	CO-2	L4	10
4.	Explain a webpage showing practical implementation of DHTML features, and justify how dynamic elements improve interactivity and responsiveness of the webpage.	CO-3	L5	10
5.	Evaluate the effectiveness of JavaScript error handling mechanisms and explain how try-catch improves the reliability of web applications.	CO-4	L5	10
6.	Explain the looping constructs in JavaScript and compare while and for loops with examples.	CO-4	L5	10
7.	Evaluate how table attributes like cellpadding, cellspacing, and border contribute to data presentation effectiveness in HTML tables.	CO-5	L5	10

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.

Roll No.

Total No. of Questions: 7

Date : 11-05-2026
Total No. of Pages: 2

BSc (Cyber Security), Semester-4th
Subject Name: DIGITAL FORENSICS
Subject Code: UGCA2002 E2
M. Code: 93438

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Define the concept of a cybercrime scene in forensic practice.	CO-1	L1	2
1.b.	Explain the application of criminalistics techniques in cyber investigations.	CO-1	L2	2
1.c.	Interpret the digital forensic procedures that ensure the admissibility of evidence.	CO-1	L2	2
1.d.	State the term 'unretrieved communications' in digital forensics .	CO-2	L1	2
1.e.	Outline the role of court orders in maintaining the validity of collected evidence.	CO-2	L2	2
1.f.	Describe the key components required for collecting evidence in computer forensics.	CO-2	L2	2
1.g.	Write any two software tools used in computer forensics investigations.	CO-3	L1	2
1.h.	Describe steps to start a computer forensic investigation following a data theft complaint.	CO-3	L2	2
1.i.	Define Information Technology Act, 2000, applicable to cyber offences in the given scenario.	CO-4	L1	2
1.j.	Interpret the importance of preserving network evidence in a forensic investigation	CO-4	L2	2
SECTION B				40

Q No.	Description	CO	BL	Marks
2.	Investigate the appropriate procedures to conduct a comprehensive cybercrime scene analysis, outlining each step involved in identifying, collecting, preserving, and documenting digital evidence.	CO-1	L4	10
3.	Determine the extent to which search and seizure protocols are followed during a digital forensic investigation and handling of evidence in legal admissibility standards.	CO-2	L5	10
4.	Utilize the secure configuration requirements of shared folders used for digital evidence storage in digital forensic environments, highlighting how these configurations help ensure confidentiality, integrity, and chain of custody of the evidence.	CO-2	L3	10
5.	Analyze the concept of Network Forensics by examining its fundamental definition and core objectives with its major components.	CO-3	L4	10
6.	Compare any two open-source tools used for network forensic analysis and classify their key features.	CO-3	L4	10
7.	Evaluate the importance of email and web forensics in cybercrime investigation, and justify their effectiveness in identifying, preserving, and presenting digital evidence in court proceedings.	CO-4	L5	10

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.

Total No. of Questions: 07

Bachelor of Science (Cyber Security), Semester- 5th

LINUX OPERATING SYSTEM

Subject Code: UGCA2021

M. Code: 94068

Date of Examination: 06-05-2026

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 consists of **SIX** questions, each carrying **TEN** marks each and student has to attempt any **FOUR** questions.

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.

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Total No. of Pages: 01

Total No. of Questions: 07

B.Sc.(CS), Semester-5th

ADVANCED WEB TECHNOLOGIES

Subject Code: UGCA2019

M.Code: 94063

Date of Examination: 30-04-2026

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 consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q. No.	Question	CO	BL
SECTION-A			
1.	Answer briefly:		
a.	Define PHP and the basic syntax to display the values in PHP.	CO-1	L1
b.	Differentiate between GET and POST methods in PHP.	CO-1	L2
c.	What is inheritance in PHP OOP?	CO-2	L1
d.	Describe the steps required to display MySQL data in an HTML table using PHP.	CO-2	L2
e.	What is a cookie in web development?	CO-3	L1
f.	Compare the working of echo and print in PHP.	CO-3	L2
g.	Illustrate how the jQuery Datepicker widget is used with a small example. <pre><input type="text" id="date"> <script> \$("#date").datepicker(); </script></pre>	CO-4	L2
h.	Describe Bootstrap grid system with a simple example.	CO-5	L2
i.	Explain two features of Node.js.	CO-6	L2
j.	Define JSX in React along with its purpose.	CO-6	L1
SECTION-B			
2.	Build a PHP script that uses numeric functions to perform statistical operations like average, maximum, minimum, and standard deviation.	CO1	L3
3.	Dissect a PHP script that reads data from a text file and displays it in an HTML table, highlighting each step of data processing.	CO2	L4
4.	Explain the advantages of web services and justify their importance in modern distributed applications.	CO3	L5
5.	Explain XML elements and attributes, and assess their importance in structuring XML documents with suitable examples.	CO4	L5
6.	Develop a form in React and apply event handling techniques to solve user input validation problems.	CO5	L3
7.	List the components of Bootstrap and their functions in designing responsive web pages.	CO6	L4

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.

1|M- 94063

Roll No. Date : 12-05-2026
Total No. of Pages: 2

Total No. of Questions: 7

BSc (Cyber Security), Semester-6th
Subject Name: CLOUD SECURITY ARCHITECTURE
Subject Code: UGCA2045 E2
M. Code: 94322

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Name any two cloud service models used in cloud computing.	CO-1	L1	2
1.b.	Explain the concept of virtualization and how it differs from traditional physical computing environments.	CO-1	L2	2
1.c.	Differentiate between Type-1 and Type-2 hypervisors.	CO-2	L2	2
1.d.	What is a hypervisor in cloud computing.	CO-2	L1	2
1.e.	Explain the importance of HA and DR in virtualized environments.	CO-2	L2	2
1.f.	Describe the concept of Software Defined Networking (SDN)	CO-2	L2	2
1.g.	Find the role of cloud storage authentication in cloud computing.	CO-3	L1	2
1.h.	Explain how encryption helps in securing object storage in cloud environments.	CO-3	L2	2
1.i.	Recall the primary objective of data privacy regulations.	CO-4	L1	2
1.j.	Explain the importance of compliance with data protection regulations.	CO-4	L2	2
SECTION B				40
2.	Use SaaS, PaaS, and IaaS models to demonstrate their application in a small business scenario.	CO-1	L3	10
3.	Explain the benefits and limitations of Software Defined Networking (OpenFlow/Open vSwitch) compared to traditional networking in virtualized infrastructures.	CO-2	L5	10
4.	Identify how organizations can implement data privacy protection while using public cloud storage services.	CO-3	L3	10
5.	Analyze how server virtualization enhances resource utilization by examining its impact on CPU, memory, and storage allocation, and differentiate it from traditional physical server usage in enterprise environments.	CO-2	L4	10
6.	Distinguish the shared responsibility model and figure out its impact on cloud storage security.	CO-3	L4	10
7.	Explain how identity and access management (IAM) policies contribute to governance in multi-cloud environments and analyze associated risks.	CO-4	L5	10

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.

Roll No. Date : 05-05-2026
Total No. of Pages: 4

Total No. of Questions: 7

BSc (Cyber Security), Semester-6th
Subject Name: MACHINE LEARNING
Subject Code: UGCA1950 E2
M Code: 94316

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	Name any two major categories of Machine Learning with one example each.	CO-1	L1	2
1.b.	Outline the concept of overfitting in Machine Learning models.	CO-1	L2	2
1.c.	Describe the Grid Search technique for hyperparameter tuning.	CO-2	L2	2
1.d.	Interpret the equation " $Y=MX+C$ " with example.	CO-2	L2	2
1.e.	Explain why training data size can influence the performance of different machine learning models.	CO-3	L2	2
1.f.	Summarize the role of Discount Factor in Q-Learning for considering future rewards.	CO-4	L2	2
1.g.	Name the different distance measures used in clustering.	CO-4	L1	2
1.h.	Describe the different reinforcement learning models and justify their suitability for solving real-world decision-making problems.	CO-6	L2	2
1.i.	Explain the concept of a Markov Decision Process (MDP) and its components.	CO-5	L2	2
1.j.	Compare Decision Tree and Naïve Bayes in terms of prediction approach and model behavior.	CO-3	L2	2
SECTION B				40
2.	Solve a regression problem by deriving and minimizing the cost function with a suitable example	CO-1	L3	10
3.	Classify regression and classification problems with suitable examples and justification.	CO-2	L4	10
4.	Evaluate the possible failure points in the Machine Learning process pipeline and discuss their causes.	CO-3	L5	10
5.	Interpret the impact of epsilon value on learning and action selection strategy.	CO-4	L5	10
6.	Judge the Q-values and V-values in decision making for reinforcement learning systems.	CO-5	L5	10
7.	Evaluate and compare Random Forest, SVM, and Naïve Bayes for a classification problem and justify the best model.	CO-6	L4	10

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.

Roll No. Date : 08-05-2026
Total No. of Pages: 2

Total No. of Questions: 7

BSc (Cyber Security), Semester-6th
Subject Name: SOCIAL MEDIA SECURITY
Subject Code: UGCA2043 E2
M. Code: 94320

Time: 03:00 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.

SECTION-B consists of SIX questions, carrying TEN marks each and student have to attempt any FOUR questions.

Q No.	Description	CO	BL	Marks
SECTION A				20
1.a.	What is the meaning of Social Networking?	CO-1	L1	2
1.b.	Describe the role of connectivity in social networks.	CO-1	L2	2
1.c.	Explain the emergence of the Social Web.	CO-1	L2	2
1.d.	Define Big Data in the context of social networking.	CO-2	L1	2
1.e.	Classify the tools used for detecting communities.	CO-2	L2	2
1.f.	Explain how privacy concerns arise during data extraction.	CO-2	L2	2
1.g.	What is multi-factor authentication?	CO-3	L1	2
1.h.	Summarize the function of firewalls in network access control.	CO-3	L2	2
1.i.	What do you mean by data sharing?	CO-4	L1	2
1.j.	Describe the concept of location awareness in digital platforms.	CO-4	L2	2
SECTION B				40
2.	Identify and explain different graph theory concepts such as nodes, edges, paths, and connectivity used in social network modeling.	CO-1	L3	10
3.	Compare different community detection algorithms in detail based on accuracy, scalability, and complexity.	CO-2	L4	10
4.	Examine the effectiveness of Identity and Access Management (IAM) systems in enterprise environments.	CO-3	L4	10
5.	Compare static and dynamic community detection techniques and analyze their advantages and limitations in evolving networks.	CO-2	L4	10
6.	Analyze how authentication mechanisms used in social networks. Which methods provide the best trade-off between usability and security?	CO-3	L4	10
7.	Interpret the relationship between user awareness and cyber policy effectiveness in protecting personal information.	CO-4	L5	10

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.