

(S3)-1553

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.-2)
ENVIRONMENTAL STUDIES

Subject Code : EVS-102-18

M.Code : 77421

Date of Examination: 02-06-2025

Time : 3 Hrs.

Max. Marks : 60

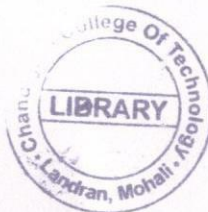
INSTRUCTIONS TO CANDIDATES :

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) Decomposers
- b) Climate Change
- c) Food Web
- d) Biodiversity
- e) Rain Water Harvesting
- f) Ecosystem
- g) Ecological Pyramid
- h) Wind Energy
- i) Cyclones
- j) Acid Rain



SECTION - B

2. Why India is known as Mega Biodiversity Nation? Discuss in detail.
3. Discuss Forest Ecosystem and explain its significance in details.
4. What do you understand by Global Warming? How it affects life on earth?
5. Why we need water conservation today? Discuss various methods of water conservation.
6. What are the various causes of Land degradation? Discuss its effects.
7. Discuss in details various alternate sources of energy to address energy crisis.

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Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.-2)
OBJECT ORIENTED PROGRAMMING USING C++

Subject Code : UGCA-1909

M.Code : 77417

Date of Examination: 28-05-2025

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 briefly :

- a) Distinguish between Dynamic binding and message passing.
- b) Explain use of friend function with the help of suitable example.
- c) What is the need of inheritance?
- d) Write difference between object oriented programming and procedure oriented programming.
- e) Define polymorphism.
- f) Explain how to write a file?
- g) State the use of scope resolution operator and its use in C++.
- h) What is virtual keyword used for?
- i) What are rules for overloading operators?
- j) Explain early binding.



SECTION - B

2. a) Discuss member functions.
b) When is an object created and what is its lifetime?
3. What is inheritance? What are different types of inheritance? Explain multiple inheritances with example.
4. a) What do you mean by type conversion? Give an example of basic to object conversion.
b) Explain abstract classes.
5. Explain Virtual functions with example. What is the difference between static & dynamic binding?
6. a) What is difference in multiple and multilevel inheritance?
b) What function can be used to open a file in C++?
7. What do you mean by operator overloading and method overloading? Write a distance class which contains data members of distance in meters, centimeters and millimeters. The class must have overloaded operators for addition + and subtraction- respectively.

Total No. of Questions : 07

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Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 24-05-2025

Time : 3 Hrs.

Max. Marks : 60

SECTION-B

2. What are logic gates? Explain different logic gates with their truth tables and diagram.
3. Explain the SOP and POS forms with suitable examples.
4. Explain the working of a Full Adder with a logic diagram and truth table.
5. Discuss the Master-Slave JK Flip-Flop and how it eliminates the race-around condition.
6. Write a detailed note on RISC and CISC Architecture.
7. Explain the 16-bit Common Bus System with a neat diagram.

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

- I. Write briefly:
 - a) What is a Universal Gate? Give examples.
 - b) State and prove De Morgan's theorems.
 - c) Explain the importance of K-map in Boolean algebra.
 - d) Define a Half Adder and write its Boolean expression.
 - e) What is the function of a multiplexer in digital circuits?
 - f) What are the limitations of RS flip-flop?
 - g) Write the differences between latches and flip flops?
 - h) Differentiate between Harvard and Von Neumann architecture.
 - i) What are Memory Reference Instructions? Give an example.
 - j) Define Control Bus and Data Bus with their significance.



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BCA (Sem.-2)
FUNDAMENTALS OF STATISTICS
 Subject Code : UGCA-1907
 M.Code : 77415
 Date of Examination : 21-05-2025

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. Statistics
- b. Primary and secondary data
- c. Histogram
- d. Objectives of tabulation
- e. Rounding off data
- f. Range and its Coefficient
- g. Standard deviation
- h. Continuous frequency distribution
- i. Geometric mean
- j. Mode



SECTION - B

2. Discuss scope and limitation of statistics.
3. What are the different methods of collecting primary data? Explain any two methods with their merits and demerits.
4. What do you mean by diagrammatic representation of data? Discuss its utility. What are the advantages and disadvantages of using diagrams for the presentation of data?
5. Calculate Mean and Median for the following data :

Marks: Below	20	30	40	50	60	70	80	90
No. of students:	4	16	56	97	124	137	146	150

6. Calculate range and standard deviation for the following:

Weight (in kgs)	44-46	46-48	48-50	50-52	52-54
No. of persons:	3	24	27	21	5

7. a) Following is the data about the market share of four brands of TV sets sold in Amritsar. Present the data by a pie diagram:

Brands of TV sets	Samsung	LG	Onida	Sony
Units sold in Amritsar	625	500	438	312

- b) Draw more than type Ogive for the following data:

Weight (in kgs)	40-45	45-50	50-55	55-60	60-65	65-70	70-75
No. of students	3	5	9	12	5	4	2

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BCA (Sem-4)
OPERATING SYSTEMS
Subject Code : UGCA-1923
M.Code : 79727
Date of Examination : 23-05-2025

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) List various views of Operating system.
- b) Define the term long term scheduler.
- c) Differentiate between Program and Process.
- d) Define the term address binding.
- e) Write advantages of Virtual Memory.
- f) Explain the need of Page Replacement.
- g) List various File Operations.
- h) Define the term Disk Bandwidth.
- i) What are the two main components of a Real Time Operating System?
- j) Why is synchronization important in multiprocessor Operating systems?



SECTION-B

2. Write a detailed note on Structure of Operating System.
3. Explain in detail about Process Synchronization.
4. Write a detailed note on Segmentation Scheme of Memory Management.
5. Write a detailed note on Memory Sharing and Protection.
6. Write a detailed note on Device drivers.
7. Write a detailed note on Distributed Operating System Characteristics, architecture and Issues.

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BCA (Sem-4)
DATABASE MANAGEMENT SYSTEMS
Subject Code : UGCA1922
M.Code : 79726
Date of Examination : 20-05-2025

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. Define view level.
- b. Limitations of hierarchical data model.
- c. Difference between alter and update.
- d. List the two DDL statements.
- e. Why do we need Normalization?
- f. What is cursor?
- g. Define the term functional dependence.
- h. What is log base recovery?
- i. What is the difference between authorization and authentication?
- j. List the different file operations.



SECTION - B

2. Discuss data redundancy, data inconsistency, data integrity, security and concurrent access.
3. Discuss Hierarchical, Network, Relational and Object-Oriented Models.
4. Why do we need the concept of keys in DBMS? Discuss Primary Key, Candidate Key, Foreign Key, Super Key and Composite Key with the help of suitable example.
5. Discuss how normalization removes redundancy and improves data integrity. Explain 1NF, 2NF and 3NF.
6. What are joins in SQL? Explain the different types of joins with examples.
7. What is concurrency control? Explain the different concurrency control techniques.

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BCA (Sem-4)
SOFTWARE ENGINEERING
Subject Code : UGCA1921
M.Code : 79725
Date of Examination : 06-05-2025

Time : 3 Hrs.

Max. Marks : 60

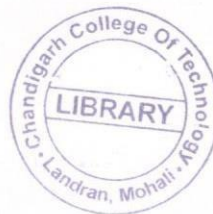
INSTRUCTIONS TO CANDIDATES :

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) Define Software Engineering and explain its need.
- b) What are Specialized Process Models? Give an example.
- c) Explain the role of a system analyst.
- d) What are functional and non-functional requirements?
- e) Define cohesion and coupling in software design.
- f) What are the characteristics of a good software design?
- g) Differentiate between unit testing and integration testing.
- h) What is Software Reengineering?
- i) Explain in brief about Software Measurement.
- j) Define a decision tree and a decision table.



SECTION-B

2. Write a detailed note on Spiral model along with its advantages and disadvantages.
3. Discuss Software Requirement Specification (SRS) and its essential properties.
4. Explain structured analysis and function-oriented design in detail.
5. What are software testing fundamentals? Explain system testing in detail.
6. Explain in detail about Metrics for Testing and Metrics for Maintenance.
7. Write a detailed note on Software Cost Estimation.

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BCA (Sem.-6)
ANDROID PROGRAMMING
Subject Code : UGCA-1943
M.Code : 91681
Date of Examination : 05-05-2025

Time : 3 Hrs.

Max. Marks : 60

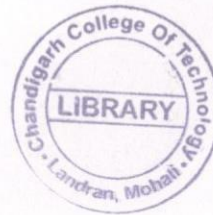
INSTRUCTIONS TO CANDIDATES :

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) Explain with example the need and significance of Async tasks.
- b) What is the significance of the term 'interaction among activities'?
- c) Explain explicit intent.
- d) What do you mean by term availability?
- e) Define debugging.
- f) Explain term activity.
- g) Why security feature is required in mobile applications?
- h) What do you mean by default resources?
- i) What is the future of an android OS?
- j) What is the importance of design principles?



SECTION-B

2. What do you mean by enterprise requirements in mobile applications? Explain in detail.
3. Explain characteristics and applications of mobile applications.
4. What do you mean by integrated cloud services? Explain in detail.
5. Explain in detail the architecture of Andriod OS.
6. Explain white box testing and black box testing with suitable examples.
7. What do you mean by Mobile Software Engineering? Explain in detail.

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Total No. of Questions : 07

BCA (Sem.-06)

DIGITAL MARKETING

Subject Code : UGCA-1947

M.Code : 91691

Date of Examination : 19-05-2025

Time : 3 Hrs.

Max. Marks : 60

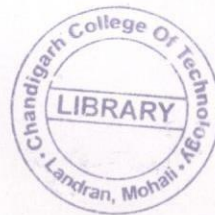
INSTRUCTIONS TO CANDIDATES :

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. Explain the keywords analytics tool.
- b. What is Video marketing?
- c. Define Content marketing.
- d. Describe Facebook Marketing.
- e. Role of Search Engine result page.
- f. Off-site marketing.
- g. What is the need of Web analytics?
- h. Need of Keywords for SEO.
- i. What is Sponsorships marketing?
- j. Explain Social media optimization.



SECTION - B

2. Elaborate in details the influencer marketing, affiliate marketing, viral marketing and referral marketing.
3. Describe the concept of social media marketing. What are the different types of SMM and their features?
4. What is mobile marketing and its role for marketers? What is online advertising and its advantages?
5. Describe the importance of internet and search engine. What is the role of keywords for SEO?
6. Discuss how on-page SEO is different from Off-page SEO? Explain the strategies of Off page SEO.
7. Explain the role of website for online marketing. What is the process of website development for marketing purpose?

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BCA (Sem.-6)
MACHINE LEARNING
Subject Code : UGCA1950
M.Code : 91697
Date of Examination : 22-05-2025

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. Answer briefly :

- a) List some real-world application of machine learning.
- b) Significance of Gradient Descent in Machine Learning.
- c) What is decision tree?
- d) Define false positive and false negative for classification problem.
- e) What is hierarchical clustering?
- f) Define Reinforcement learning.
- g) What is Naïve Bayes Classifier?
- h) What is Exploitation Dilemma in Reinforcement learning?
- i) What is importance of hyperparameter optimization?
- j) What are Q values?



SECTION-B

2. Explain the Machine Learning process flow with a real-world example.
3. Discuss Support Vector Machines (SVM) with an example and explain how they separate data points?
4. Explain Hierarchical Clustering with its working mechanism and how it differs from K-means clustering?
5. Discuss the role of a values in Reinforcement Learning and their impact on learning rate.
6. Define the Markov Decision Process (MDP) and describe its key components.

SECTION-C

7. Compare and contrast different types of Machine Learning (Supervised, Unsupervised, and Reinforcement Learning) with suitable examples.
8. Discuss Decision Trees, Random Forest and Naïve Bayes classifiers in terms of their advantages, disadvantages and real-world applications.
9. **Write a short note on :**
 - a) Grid Search VS Random Search.
 - b) C Means algorithm.

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BCA (Sem.-6)
INFORMATION SECURITY
Subject Code : UGCA1948
M.Code : 91695
Date of Examination : 29-05-2025

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) Explain the basic function of the DES algorithm in encryption.
- b) What are the key characteristics of a "good" encryption algorithm?
- c) What are viruses, and how do they differ from other forms of malicious code?
- d) What is the role of intrusion detection systems (IDS) in securing networks?
- e) What makes a network Vulnerable?
- f) What is multilevel security?
- g) How does secure email encryption protect the confidentiality of communications?
- h) What is the role of an organization's security policy?
- i) What are the roles of employee?
- j) What are the some common examples of cybercrimes?



SECTION-B

2.
 - a) What is computer security and why is it essential for protecting digital assets?
 - b) What is elementary cryptography and how does it contribute to securing communications and data?
3.
 - a) Discuss the role of digital signatures in public key cryptography and their importance in verifying identities.
 - b) What are non-malicious program errors and how can they potentially lead to security vulnerabilities in software systems?
4.
 - a) Explain the concept of file protection mechanisms in an operating system. How do they prevent unauthorized access to critical system files?
 - b) What are the key principles behind designing a trusted operating system, and what features are essential for its security?
5.
 - a) What are sensitive data types in databases and why is their protection critical for maintaining privacy and T security?
 - b) What is a firewall and how does it help in securing a network from unauthorized access?
6.
 - a) Explain the process of risk analysis in security management. How does it help organizations assess vulnerabilities and mitigate potential threats?
 - b) What ethical issues arise in computer security, and how should professionals address these issues in their work?
7. Analyze a famous case of data breach (e.g., Equifax or Target) and explain how the breach could have been avoided with proper security planning.

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BBC (IT) / BCA (Sem.-06)
SOFTWARE PROJECT MANAGEMENT
Subject Code : UGCA 1957
M.Code : 93688
Date of Examination : 10-06-2025

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 baseline?
- b) What are formal technical reviews?
- c) What is issue resolution?
- d) What is use case points approach?
- e) What is defect prevention?
- f) What is audit control?
- g) Differentiate between process and project.
- h) What is process monitoring?
- i) What is project tracking?
- j) Mention different team structures.



SECTION - B

2. Differentiate between Verification and Validation.
3. Explain the project management process in detail. What is significance of Capability Maturity Model?
4. Explain risk assessment and risk control in detail.
5. Compare and contrast the bottom up and top down estimation approaches.
6. **Write notes on:**
 - a) Quality Management
 - b) Project Closure Analysis
7. What do you understand by change management? Explain software configuration management in detail.

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Total No. of Questions : 07

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BCA (Sem.-5)
INTERNET OF THINGS
Subject Code : UGCA-1933
M.Code : 90316
Date of Examination : 19-06-2025

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 term embedded system.
 - b) What is the role of communication protocols in IoT systems?
 - c) What is the role of an IoT system in today's era?
 - d) What do you mean by term M2M?
 - e) *"IoT solutions are self-configuring"*, what is the meaning of term self-configuring here.
 - f) Define CoAP.
 - g) What is significance of Exclusive pair in IoT communication model?
 - h) Explain role of IoT systems in transportation.
 - i) Define Raspberry PI.
 - j) What is the usage of M2M gateway?



SECTION - B

2. Explain different levels of IoT in detail with the help of suitable example.
3. What do you mean by IoT enabled technologies? Explain IoT enabled technologies in detail.
4. Explain IoT design methodology in detail with suitable examples.
5. Explain Domain specific IoTs City and Environment.
6. What do you mean by security management? Explain how security management is important and necessary in an IoT system.
7. Explain cloud storage models and communication APIs.

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Total No. of Questions : 07

BCA (Sem.-5)
PROGRAMMING IN PHP
Subject Code : UGCA1929
M.Code : 90312

Date of Examination : 17-06-2025

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) Explain any three string functions in PHP with syntax.
- b) Explain any three Date Time functions in PHP.
- c) Explain any two types of array available in PHP.
- d) What is the difference between local and global variables?
- e) Define static variables.
- f) Why PHP is known as scripting language?
- g) Write a program in PHP to calculate the square root of a number.
- h) Create links in PHP.
- i) Write short note on super global array.
- j) Write PHP statements to insert data into MySQL table.

SECTION - B

2. Write a PHP program to display book details in a library.
3. Discuss the role of PHP in web development. Explain Looping statements available in PHP with example.
4. What is the process for connecting to MySQL database in PHP? Explain with suitable example.
5. Create a registration form in PHP using text boxes, buttons, radio-buttons and checkboxes?
6. Explain file handling in PHP.
7. Explain how functions are defined and different ways of passing arguments?



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BCA (Sem.-5)
PROGRAMMING IN JAVA
Subject Code : UGCA1932
M.Code : 90315
Date of Examination : 28-06-2025

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:
- What is the meaning of first line of java program "public static void main (String args[])"?
 - How Java differs from C++?
 - Define Java tokens.
 - What are the challenges of Java?
 - What are string functions in Java?
 - What are packages?
 - Write the importance of interfaces.
 - Differentiate between Applet with Applications.
 - What is thread Synchronization?
 - What is event-handling?



SECTION - B

2. Explain following :
 - a) Constructed and its syntax.
 - b) Method Overloading
3. Discuss various loop statements and branching statements available in Java. Show their syntax.
4. How do we create a Java applet? Discuss its life cycle showing passing parameters to Applets.
5. What is error and exception handling in Java? How would you handle the exception using Try and Catch?
6. What is inheritance? Explain its types with example.
7. What are the inbuilt streams available in Java I/O package? Discuss data I/P and O/P streams.

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BCA (Sem-4)
SOFTWARE ENGINEERING
Subject Code: 48201

Subject Code : UGCA1921

M.Code: 79725

Date of Examination : 19-06-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES:
1. SECTION A is compulsory.

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 :
- Explain in brief about the Nature of Software.
 - List the various Specialized Process Models.
 - Write the properties of a good SRS document.
 - What is the difference between a Decision Tree and a Decision Table?
 - List out the importance of Software cost estimation in software development.
 - What are the major activities involved in software design?
 - Differentiate between coupling and cohesion.
 - Write the features of a design document.
 - Explain the term Integration Testing and Validation Testing.
 - Define software maintenance.



SECTION - B

2. Write a detailed note on Prototyping Model along with its advantages and disadvantages.
3. Explain in detail about Unified Process.
4. Write a detailed note on Formal Requirements Specification.
5. Explain in detail about Functional and Non - Functional Requirements.
6. Differentiate between Function - Oriented Design vs. Object - Oriented Design.
7. Explain in detail about Metrics for Requirements Model and Metrics for Design Model.

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BCA/B.Sc. (IT) (Sem.-3)
PROGRAMMING IN PYTHON
Subject Code : UGCA-1914
M.Code : 78180
Date of Examination : 20-06-2025

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) Name three limitations of Python.
- b) How do you set up environment variables for Python?
- c) What is exception handling in Python?
- d) Give an example of a real-world application of Python.
- e) Name three native data types in Python.
- f) What does the range() function do in Python?
- g) What is an anonymous function in Python?
- h) How do you define a user-defined function in Python?
- i) What is the purpose of directories in Python?
- j) What is file encoding and why is it important?



SECTION-B

2. Provide an in-depth analysis of Python's applications across various domains, highlighting specific examples and discussing its advantages over other programming languages in these contexts.
3. Explain the concept of control structures in Python, discussing how they enable the flow of program execution. Provide examples of conditional statements, loops and function calls to illustrate their usage.
4. Investigate the features and usage of dictionaries in Python, emphasizing their key-value pair structure and efficient data retrieval capabilities. Provide examples to illustrate dictionary operations, including adding/removing items, accessing values and iterating through key-value pairs.
5. Compare and contrast pass by value and pass by reference in Python, explaining how arguments are passed to functions and how changes made to mutable objects within functions can affect the original objects. Provide examples to demonstrate the differences between pass by value and pass by reference.
6. Explain the process of working with files in Python, including file, opening, reading, writing, and closing operations. Describe various file opening and discuss their respective purposes and behaviors. Additionally, discuss file attributes such as mode, name, closed, and encoding and demonstrate how to access them using file object attributes.
7. Explore garbage collection in Python, explaining how it manages memory by automatically reclaiming unused objects to free up system resources. Discuss the garbage collection mechanisms used in Python, including reference counting and cyclic garbage collection, and explain how they work to identify and remove unreachable objects from memory. Additionally, discuss techniques for controlling garbage collection behavior and optimizing memory usage in Python programs.

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Total No. of Pages : 02

BCA (Sem.-3)
COMPUTER NETWORKS
Subject Code : UGCA-1913
M.Code : 78179

Date of Examination : 18-06-2025

Time : 3 Hrs.

Max. Marks : 60

SECTION - B

2. Write a note on SLIP and PPP.
3. What is Multiplexing? Explain its types, merits and demerits.
4. Define routing. Explain any one algorithm of routing.
5. Write a note on flow control and buffering.
6. Explain the various wireless transmission techniques.
7. Discuss the various issues in session and presentation layer.

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. Digital
 - b. Synchronous
 - c. Half-duplex
 - d. LAN
 - e. Optical fiber
 - f. Attenuation
 - g. TDM
 - h. IEEE 802.4
 - i. Congestion
 - j. UDP



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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.-3)
PC ASSEMBLY & TROUBLESHOOTING

Subject Code : UGCA-1919

M.Code : 78185

Date of Examination : 25-06-2025

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 purpose of a north-bridge and south-bridge on PC motherboard?
 - b) What is a HW interface port?
 - c) Define the terms PC-AT, PC-XT and give their origin in personal computing devices.
 - d) Define and differentiate personal computer, mini-computer, main-frame and super computers.
 - e) What is BIOS and discuss different types of BIOS?
 - f) What are inputs and output hardware ports and their applications?
 - g) What is hardware virtualization? Justify with example.
 - h) What do you mean by POST and booting of a system?
 - i) Differentiate by working of line printers, dot-matrix, inkjet and LaserJet printers.
 - j) What is the difference between in a LaserJet printer and a flatbed scanner?



SECTION-B

2. Define Operating System. Give introduction of different versions of Windows for PCs.
3. What is a Master Boot Record (MBR), Discuss its working and importance? How it is used in Windows 10 and 11 operating systems?
4. How an HDD is partitioned and why? Discuss and explain the disk partitioning process. How many primary disk drives required installing an operating system?
5. What do you mean by utility software? How these are different than device drivers? How HP printers and scanner drivers are installed if not provided with the respective device?
6. What is a motherboard? What is the main difference between desktop and laptop motherboards? Discuss main I/O ports and interface controllers on a motherboard.
7. Give introduction of 8085 μ Processor. Compare it with other intel based 32-bit and 64-bit processors with main features of each.

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Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (G & W.D / I.T) / BCA (Sem.-3)

DATA STRUCTURES

Subject Code : UGCA-1915

M.Code : 78181

Date of Examination : 23-06-2025

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. Data Structures
 - b. Strings
 - c. Hashing
 - d. Sparse Matrix
 - e. Binary Search Tree
 - f. CRT
 - g. Dangling Pointer
 - h. Small 'o' Notation
 - i. Queue
 - j. Heap



SECTION - B

2. What is a pointer? How dynamic memory is allocated?
3. Give an example of postfix expression. How to evaluate it using stacks?
4. Differentiate between bubble, selection and insertion sorting.
5. Write a note on AVL tree and B-Trees.
6. What is a linked list? Write algorithm to insert a node in doubly linked list.
7. How graph is represented in adjacency matrix? Write the applications of graphs

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.-3)

PC ASSEMBLY & TROUBLESHOOTING

Subject Code : UGCA-1919

M.Code : 78185

Date of Examination : 25-06-2025

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 purpose of a north-bridge and south-bridge on PC motherboard?
 - b) What is a HW interface port?
 - c) Define the terms PC-AT, PC-XT and give their origin in personal computing devices.
 - d) Define and differentiate personal computer, mini-computer, main-frame and super computers.
 - e) What is BIOS and discuss different types of BIOS?
 - f) What are inputs and output hardware ports and their applications?
 - g) What is hardware virtualization? Justify with example.
 - h) What do you mean by POST and booting of a system?
 - i) Differentiate by working of line printers, dot-matrix, inkjet and LaserJet printers.
 - j) What is the difference between a LaserJet printer and a flatbed scanner?

SECTION-B

2. Define Operating System. Give introduction of different versions of Windows for PCs.
3. What is a Master Boot Record (MBR), Discuss its working and importance? How it is used in Windows 10 and 11 operating systems?
4. How an HDD is partitioned and why? Discuss and explain the disk partitioning process. How many primary disk drives required installing an operating system?
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6. What is a motherboard? What is the main difference between desktop and laptop motherboards? Discuss main I/O ports and interface controllers on a motherboard.
7. Give introduction of 8085 μ Processor. Compare it with other intel based 32-bit and 64-bit processors with main features of each.



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Total No. of Questions : 07

Total No. of Pages : 02

Bachelor of Computer Applications (Sem.-5)

COMPUTER GRAPHICS

Subject Code : UGCA1934

M.Code : 90317

Date of Examination : 01-07-2025

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 a Graph?
 - b) What are the advantages of using a trackball over a traditional computer mouse?
 - c) What is a lookup table in computer graphics?
 - d) Define scan conversion.
 - e) Write a transformation matrix for reflection about a line inclined at 45 degrees to the x- axis.
 - f) Write and explain the mathematical equation used for the DDA line drawing algorithm.
 - g) What is clipping?
 - h) Write equations for 3-D translation, rotation, and scaling operations.
 - i) What is persistence? How is it related to refreshing?
 - j) What do you mean by shading of objects?



SECTION - B

2. What are video display devices? Explain with the help of a neat diagram the working of a Cathode Ray Tube.
3. Write down the steps used for the Mid-Point circle generation algorithm. Also, explain how successive decision parameter equation is derived for the Mid-Point circle algorithm.
4. Perform a 45-degree rotation of a triangle with vertices A (0, 0), B (1, 1), C (5, 2). About:
 - a) The origin
 - b) About point P (-1, -1).
5. Write a note on filling techniques. Compare and contrast flood fill and boundary fill methods.
6. Describe the working of the Liang-Barsky line clipping algorithm. How is this algorithm more efficient than the Cohen-Sutherland line clipping algorithm?
7. Write down the equations for 3-D translation, rotation, and scaling operations. Drive a 3-D transformation matrix for rotating an object by an angle θ degree in the direction of the Y-Z plane.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

Bachelor of Computer Applications (Sem.-6)

CYBER LAWS & IPR

Subject Code : UGCA1949

M.Code : 91696

Date of Examination : 03-06-2025

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) Explain the use of web technology in Cyber Law.
- b) What is the significance of Jurisdiction in Cyber Law?
- c) Define the term Cyber Stalking.
- d) What is Cyberspace?
- e) What is Hacking?
- f) What is a copyright? What are its characteristics?
- g) What do you mean by Open Source Software?
- h) What do you mean by Rights of Patent?
- i) Explain the importance of Trademark.
- j) List the steps to Register the Trademark.



SECTION-B

2. What is Jurisprudence? Explain the types of Jurisdictions under IT Act 2000.
3. What is trademark, types of trademark and explain how the trademark is protected?
4. Explain in detail different types of IPRs in India and abroad.
5. What is privacy Threat on Internet? Explain the self regulation approach to privacy.
6. What do mean by Digital forgery? Explain the ethics and Etiquettes of cyber world.
7. Explain the different forms of Cyber Defamation and Cyber Terrorism.

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