Roll No. | | | | | | | | | | | | |

Total No. of Questions: 09

Total No. of Pages: 01

MCA, Semester- 2nd

ADVANCED JAVA

Subject Code: PGCA1918

M.Code: 79617

Date of Examination: 23-12-2025

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

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

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	Distinguish between 'doGet()' and 'doPost()'.	CO1	L2
b.	What are Cookies?	CO1	L1
c.	Explain Session tracking in Servlet.	CO2	L2
d.	Define the JSP in detail.	CO2	L1
e.	List the various components of struts framework.	CO3	L1
f.	Explain EJB.	CO3	L2
g.	What is the role of POJO files in hibernate framework?	CO4	L2
h.	Show the MVC architecture in struts framework.	CO4	L1
i.	List the features of the object naming service in CORBA.	CO5	L1
j.	Illustrate the stubs used in RMI.	CO5	L2
	SECTION-B		
2.	Identify the various JSP tags with example.	CO2	L3
3.	Analyze the different phases involved in the life cycle of a JSP.	CO2	L4
4.	Identify the various methods of Servlet in detail with a suitable example.	CO1	L3
5.	Explain the Sturts framework with suitable example.	CO1	L5
	SECTION-C		
6.	Explain the Java Bean Class with the help of a program.	CO3	L5
7.	Examine the Session Factory, Session, and Transaction components in Hibernate work together to ensure data persistence and consistency in a database.	CO4	L4
8.	Demonstrate how CRUD (Create, Read, Update, Delete) operations are performed in Hibernate with suitable example.	CO3	L3
9.	Explain the architecture of CORBA in detail with the help of diagram.	CO5	L5

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Total No. of Pages: 01

Total No. of Questions: 09

MCA, Semester-2nd

DESIGN AND ANALYSIS OF ALGORITHMS

Subject Code: PGCA-1920

M. Code: 79616

Date of Examination: 20-12-2025

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

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

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	Define an algorithm and explain its basic characteristics.	CO1	L1
b.	What is the purpose of analyzing an algorithm?	CO1	L1
c.	Explain the recursive algorithms.	CO2	L2
d.	What is Knapsack problem?	CO3	L1
e.	Illustrate Hamiltonian Circuit Problem and explain why it is NP-Complete.	CO4	L2
f.	What is a recursive algorithm? Give one example	CO2	L1
g.	What is binary search? Write its algorithm and explain its time complexity	CO3	L1
h.	Explain the sorted array.	CO3	L2
i.	Explain Big O notation with an example.	CO1	L2
j.	Illustrate any two algorithm used to solve the string matching problem.	CO4	L2
	SECTION-B		
2.	Apply the principle of Branch and Bound to solve the Traveling Salesperson Problem (TSP).	CO2	L3
3.	Simplify the principles of algorithm design and discuss their importance in solving computational problems.	CO1	L4
4.	Analyze the importance of time and space complexity in evaluating algorithm efficiency. Compare both with suitable examples.	CO1	L4
5.	Evaluate the backtracking approach using the N-Queens problem. Discuss how it differs from the greedy approach.	CO2	L5
	SECTION-C		
6.	Simplify the Breadth-First Search (BFS) and Depth-First Search (DFS) algorithms with examples. Compare their uses.	CO4	L4
7.	Evaluate how Dynamic Programming and Backtracking techniques help approximate solutions to NP-Hard problems.	CO4	L5
8.	Identify and explain the time complexity of Heap Sort.	CO3	L3
9.	Analyze the working of Radix Sort and evaluate its advantages over comparison-based sorting algorithms.	CO3	L5

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Total No. of Pages:02

Total No. of Questions: 09

MCA , Semester- 2nd

INFORMATION SECURITY & CYBER LAW

Subject Code: PGCA1932

M.Code: 79619

Date of Examination:18-12-2025

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

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

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	Define security functional requirements.	CO1	L1
b.	What is Token-Based Authentication?	CO1	L1
c.	Outline the need for Database Security.	CO2	L2
d.	Explain the denial of Service (DoS)attacks.	CO2	L2
e.	What is Hacking?	CO3	L1
f.	Define the Role-Based Access Control in Information Security.	CO3	L1
g.	Illustrate the concept of Firewall.	CO4	L2
h.	Compare symmetric and asymmetric encryption.	CO4	L2
i.	What are the ISO Standards?	CO5	L1
j.	Explain Cyberspace.	CO5	L2
	SECTION-B		
2.	Identify the concept confidentiality, integrity, and availability. How does each element contribute to the overall security of an information system.	CO1	L3
3.	Explain different access control policies adopted by organizations to protect information resources.	CO2	L5
4.	Analyze the differences between Password-Based, Token-Based, and Biometric Authentication in terms of security strength, cost, and user convenience.	CO2	L4
5.	Classify the different types of malicious software (malware) such as viruses, worms, Trojans, and spyware with suitable examples.	CO3	L4

SECTION-C			
6.	Explain the working principles of host-based intrusion detection Systems (HIDS) and network-based intrusion detection systems (NIDS). How do they differ in their approach?	CO4	L5
7.	Discuss the characteristics and functions of firewalls. Why are firewalls considered a critical part of network security infrastructure?	CO4	L6
8.	Analyze the symmetric encryption principles and discuss the working of the data encryption standard (DES) with a suitable block diagram.	CO5	L4
9.	Apply the concept of Digital Signature and its creation, verification process, and legal significance in securing electronic transactions.	CO5	L3

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Total No. of Pages: 02

Total No. of Questions: 09

MCA, Semester- 2nd

LINUX ADMINISTRATION

Subject Code: PGCA-1956

M.Code: 79618

Date of Examination: 02-01-2026

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION B & C have FOUR questions each.
3. Each question of SECTION B & C consists of TEN marks.
4. Attempt any FIVE questions from SECTION B & C, taking at least two questions from each section.

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	What is the key difference between Linux and Windows kernels?	CO1	L1
b.	Explain the role of the root directory in a Linux file system.	CO1	L2
c.	Discuss the commands used to move or rename a file in Linux.	CO2	L2
d.	Write a short note on Linux boot process.	CO2	L1
e.	Describe how the chmod command is used to change file permissions in Linux.	CO2	L2
f.	List the characteristics of a package and a folder in Windows.	CO3	L1
g.	Compare GRUB and LILO.	CO3	L2
h.	Summarize the role of SMTP in email communication.	CO3	L2
i.	Write a short note on HTTP protocol?	CO4	L1
j.	Explain the role of the Samba server.	CO4	L2
	SECTION-B		
2.	Analyze the role of the Linux root user and compare it with Windows administrator accounts.	CO1	L3
3.	Describe the Linux booting and shutting down processes in detail. Discuss the significance of the runlevels in the boot process.	CO2	L4

4.	Evaluate the Linux file structure and hierarchy, highlighting its advantages and potential limitations.	CO1	L5
5.	Examine the role of vi text editor in Linux. Explain insertion and command modes, give any 5 commands in detail.	CO2	L4
	SECTION-C		
6.	Demonstrate the process of installing and configuring a DNS server by setting up BIND database files and configuring DNS clients.	CO3	L3
7.	Explain the key concepts of the HTTP protocol and its role in web communication. Discuss how Apache is utilized for hosting websites?	CO4	L5
8.	Demonstrate the differences between POP and IMAP protocols and demonstrate how each is used in managing email accounts.	CO4	L4
9.	Explain the advantages of using Samba for remote sharing in Windows and Linux environments.	CO3	L5

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Total No. of Pages: 02

Total No. of Questions: 09

MCA, Semester- 2nd

WEB TECHNOLOGIES

Subject Code: PGCA-1909

M. Code: 79615

Date of Examination: 15-12-2025

Time: 3 Hrs. Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION B & C have FOUR questions each.
3. Each question of SECTION B & C consists of TEN marks.
4. Attempt any FIVE questions from SECTION B & C, taking at least two questions from each section.

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	Define an IP address.	CO1	L1
b.	What is HTML and its basic structure.	CO2	L1
c.	List any two types of hyperlinks used in HTML.	CO3	L1
d.	Name any two form elements used to capture user data in HTML.	CO4	L1
e.	Recall what TCP/IP stands for.	CO5	L1
f.	Explain how the attributes cellpadding, cellspacing, and border enhance the readability and appearance of an HTML table.	CO1	L2
g.	Differentiate between a programming language and a markup language with examples.	CO3	L2
h.	Interpret the difference between internal links and external links in HTML.	CO2	L2
i.	Describe how JavaScript captures user input from form elements.	CO2	L2
j.	Relate how front-end HTML forms are connected to back-end servers for data processing.	CO2	L2
	SECTION-B		
2.	Apply your understanding of IP addressing to explain how unique IPs are assigned to systems and how they enable Internet communication.	CO1	L3

3.	Develop an HTML code snippet that creates a table with merged cells using `COLSPAN` and `ROWSPAN`. Explain the purpose of each attribute.	CO3	L4
4.	Analyze how the `<img>` tag contributes to webpage design. Write HTML code to insert an image with alternate text and defined dimensions.	CO2	L4
5.	Evaluate the role of fundamental Internet concepts such as domain names, and client-server architecture in ensuring efficient and secure digital communication. Which concept do you consider most critical, and why?	CO2	L5
	SECTION-C		
6.	Evaluate how platform independence supports modern web application deployment. Provide a relevant example.	CO5	L5
7.	Analyze how different types of hyperlinks (external document references, internal document references, and image-based hyperlinks) can be used together to design a fully connected multipage website.	CO3	L4
8.	a. Create an HTML Program using `<FRAMESET>` and `<FRAME>` tags to divide a web page into multiple sections. b. Demonstrate how different webpages can be displayed within each frame through practical implementation.	CO4	L6
9.	Demonstrate the use of Checkbox and Radio elements.	CO4	L5

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