--Question Starting--
Match the following programming concepts with their primary domain of application:
1. Programming Concepts Domain of Application
I. Servlets A. Manipulating document structure and styles
II. Applets B. Web client-side scripting
III. HTML C. Web server-side programming
IV. Scripting D. Defines structure of web pages
Choose the correct answer from the options given below:
(1) I-C, II-B, III-D, IV-A
(2) I-D, II-A, III-B, IV-C
(3) I-A, II-C, III-D, IV-B
(4) I-B, II-D, III-A, IV-C
Answer Key: 1
Solution:
? Servlets are used in server-side programming to extend the capabilities of servers and respond to requests.
? Applets are small applications that run on the client-side within a web browser.
? HTML is the markup language used to construct web pages and define their structure.
? Scripting, particularly JavaScript, is used for client-side scripting to enhance user interaction by manipulating HTML and CSS.
Hence, Option (1) is the right answer.

--Question Starting--
Match the following architectural elements with their respective computing models:
1. Architectural Elements Computing Model
I. General Register Organization A. CISC Computer
II. RISC Computer B. Stack Organization
III. Instruction Formats C. General Register Organization
IV. Addressing Modes D. RISC Computer
Choose the correct answer from the options given below:
(1) I-A, II-D, III-C, IV-B
(2) I-C, II-B, III-D, IV-A
(3) I-D, II-A, III-B, IV-C
(4) I-B, II-C, III-A, IV-D
Answer Key: 4
Solution:
? General Register Organization is a feature typically found in RISC computers where the use of many registers aims to enhance performance.
? RISC Computer architectures simplify the instruction set, which allows for faster processing speeds.
? Instruction Formats in CISC computers are varied and complex, accommodating a larger set of instructions.
? Addressing Modes are a critical part of instruction design in both RISC and CISC but are more prominently flexible and complex in CISC computers.
Hence, Option (4) is the right answer.

--Question Starting--
Match the following runtime system components with their functionalities:
1. Components Functionalities
I. Activation Tree A. Manages memory for program execution
II. Stack Allocation of Activation Records B. Defines program's execution entities
III. Symbol Table C. Tracks variables and their bindings
IV. Parameter Passing Mechanisms D. Transfers data between functions
Choose the correct answer from the options given below:
(1) I-B, II-A, III-C, IV-D
(2) I-C, II-D, III-A, IV-B

(3) I-A, II-B, III-D, IV-C
(4) I-D, II-C, III-B, IV-A
Answer Key: 3
Solution:
? Activation Tree visually represents the calling relationships between functions during the execution of a program.
? Stack Allocation of Activation Records is a method of managing memory by stacking records that store data about the active subroutines.
? Symbol Table is used to keep track of identifier names and their corresponding attributes within the scope of the program.
? Parameter Passing Mechanisms are crucial for specifying how values are passed between procedures or function calls.
Hence, Option (3) is the right answer.

--Question Starting--
Match the following code optimization techniques with their respective focus areas:
1. Techniques Focus Areas
I. Local Optimization A. Optimizes across multiple blocks of code
II. Global Optimization B. Reduces overhead within individual code blocks
III. Loop Optimization C. Enhances performance of iterative constructs
IV. Peep-Hole Optimization D. Examines small sequences of instructions for quick wins
Choose the correct answer from the options given below:
(1) I-B, II-A, III-C, IV-D
(2) I-C, II-D, III-A, IV-B
(3) I-A, II-C, III-D, IV-B
(4) I-D, II-B, III-A, IV-C
Answer Key: 1
Solution:
? Local Optimization focuses on making code changes within a single block to improve efficiency without altering the logic.
? Global Optimization extends these improvements beyond single blocks, enhancing the program's overall performance.
? Loop Optimization specifically targets loops to reduce unnecessary computations and improve loop execution times.
? Peep-Hole Optimization looks at very small parts of the code to make quick optimizations that can cumulatively lead to significant improvements.
Hence, Option (1) is the right answer.

--Question Starting--
Match the following CPU scheduling criteria with their most aligned scheduling algorithm:
1. Criteria Algorithm
I. Scheduling Criteria A. Multiple Processor Scheduling
II. Thread Scheduling B. Real-Time CPU Scheduling
III. Multiple Processor Scheduling C. Thread Scheduling
IV. Real-Time CPU Scheduling D. Scheduling Criteria
Choose the correct answer from the options given below:
(1) I-D, II-C, III-A, IV-B
(2) I-C, II-D, III-B, IV-A
(3) I-B, II-A, III-D, IV-C
(4) I-A, II-B, III-C, IV-D
Answer Key: 1
Solution:
? Scheduling Criteria typically involves factors like throughput, CPU utilization, and response times, which are

general considerations in CPU scheduling.
? Thread Scheduling focuses on the management of threads within the operating system, which can be part of larger task scheduling strategies.
? Multiple Processor Scheduling deals with the distribution and coordination of tasks across multiple processors.
? Real-Time CPU Scheduling ensures that critical real-time tasks meet their deadlines, which is crucial in systems where timing is critical.
Hence, Option (1) is the right answer.