P. G. Department of Computer Science and Technology
MCA-II Internal Examination
PS02CMCA51: Object Oriented Programming using Java
Monday, 10th April, 2023

Time: 11:00 am to 12:30 pm   Max. Marks: 30

Q-1.   Choose the most appropriate option for each question.   [04]

1.   Command to execute a compiled java program is

   A) java   B) javac

   C) run   D) execute

2.   An _____ is a change in the state of an item?

   A) Spinner   B) Event

   C) Occurrence   D) Activity

3.   ODBC stands for _____

   A) Object Database Connectivity   B) Operational Database Connectivity

   C) Open Database Connectivity   D) Oracle Database Connectivity

4.   Can you create an object from abstract class in java?

   A) Yes   B) No

Q-2.   Answer the following questions (Any Three).   [06]

1.   Write a brief note on bytecode.

2.   Differentiate between: Primitive type and Reference type.

3.   Write various uses of final keyword.

4.   Define the use of wrapper classes.

Q-3.   Answer the following questions.

A.   Discuss various features of OOPs in java.   [05]

B.   Explain Interfaces in detail.   [05]

OR

B.   Explain the use of FileInput and FileOutput Stream classes with syntax.   [05]

Q-4.   Answer the following questions.

A.   Explain method overloading with example.   [05]

B.   Write a brief note on different layouts of Swing.   [05]

OR

B.   Explain JDBC Architecture with different JDBC Drivers.   [05]

****

Post Graduate Department of Computer Science & Technology
Sardar Patel University
MCA (II-Semester) Internal Test
PS02CMCA52 Software Engineering
Time : 1 Hour 30 Minutes   Date : 11-04-2023
Total Marks : 30

1.   Select the most appropriate option for each of the following questions :   4

(i) The _____ model assumes that the requirements of a system can be frozen before the design begins.

(A) Waterfall (B) Prototype (C) Spiral (D) None of these

(ii) _____ is a process of changing a software system in such a way that it does not alter the external behavior of the code or design, yet improves the internal structure.

(A) Refinement   (B) Regeneration   (C) Refactoring   (D) Reconstruction

(iii) In which diagrams, the objects participating in the interaction are shown at the top of the chart as boxes attached to vertical dashed lines ?

(A) Activity diagrams   (B) Sequence diagrams
(C) Use case diagrams   (D) Class diagrams

(iv) What should **not** be the goal of the coding phase ?

(A) To implement the design in the best possible manner.
(B) To simplify the job of the tester and the maintainer.
(C) To write programs that are easy to read and understand.
(D) To reduce the cost of previous phases of the development cycle.

2.   Answer the following questions in brief (ANY THREE) :   6
(i) Define : *software engineering*. What are the *goals* of software engineering ?
(ii) List the *criteria* for determining the *quality* of *software design*.
(iii) Distinguish between module *coupling* and *cohesion*.
(iv) Write the **criteria** for judging a program.

3.(A) Describe the *waterfall model* giving its limitations.   5
  (B) Write a short note on **agile software development** approach.   5
                              OR
  (B) Describe the *prototyping model* giving its advantages.   5

4.(A) Write a short note on *class diagrams*.   5
  (B) Write a short note on *activity diagram* giving summary of the notations.   5
                              OR
  (B) Explain various examples of the *common coding errors* and associated suggestions.   5

------ ------

PG Department of Computer Science and Technology
MCA Semester II Internal Examination , PS02CINTC53 Web Technology
Date: April 12, 2023   Time: 11:00 am to 12:30 pm   Max. Marks: 30

Q. A I   Choose the most appropriate option for each question: [2]

1. In CSS, declaration blocks are surrounded by _____.
   A) round brackets   B) curly braces   C) square brackets   D) None of these
2. _____ is stateless protocol.
   A) FTP   B) HTTP   C) Telnet   D) None of these

II   Answer the following questions (ANY TWO):   [3]
1. List the characteristics of HTTP.
2. Differentiate between POST and GET method.
3. What is an inline CSS?

III A. What is a Tag in HTML? Explain HTML attributes.   [5]
      B. Explain any four CSS selector.   [5]

OR

      B. Differentiate between embedded and external style sheets. [5]

Q.B

I   Choose the most appropriate option for each question: [2]
1. Which of the following is used as a concatenation operator in php?
   A) + (plus)   B) . (dot)   C) * (Asterisk)   D) / (Slash)
2. Which variable is used to collect form data sent with both the GET and POST methods?
   A) $_REQUEST   B) $_JOINT   C) $_BOTH   D) Not Possible

II   Answer the following questions (ANY TWO):   [3]
1. PHP is server side language or client side language? Explain your answer.
2. Write down the utility of include and require statement in php files.
3. Write down the steps to connect mysql with php.

III

A. Write a shortnote on Associative Array.   [5]

B.
```
a) What will be the output of code shown below? Explain the role of global keyword
used in below code snippet. What would happen if integer value is passed in function?
<?php
$num_of_calls = 0;
function numberedHeading($txt)
{
        global $num_of_calls;  num_of_calls++;
        echo "<h1>".$num_of_calls." ". $txt."</h1>";
}
numberedHeading("MCA");
numberedHeading("MSc");
```
[5]

OR

B. What are super global variables? List down seven and explain any three of them giving one   [5]
example of each.

PG Department of Computer Science and Technology
Master of Computer Applications (MCA)
MCA-II Semester
PS02CMCA54 (The .NET Technology)
13th April 2023

Time : 1½ Hours

Marks : 30

Q-1 [A] Choose the most appropriate answer among the given options.   **[4]**

i. Which of these methods are used to read single character from the console?

  [A] get()   [B] getChar()   [C] read()   [D] none of these

ii. In C#.NET, _____ causes the loop to continue with the next iteration after skipping any statements in between.

  [A] break   [B] continue   [C] return   [D] exit

iii. Arrays in C# are ___ objects.

  [A] Reference   [B] Value
  [C] Both [A] & [B]   [D] None of these

iv. Which one of the following control have Multiline property in C#.NET?

  [A] Checkbox   [B] Radiobox   [C] Timer   [D] Textbox

[B] Do as directed (ANY THREE) :   **[6]**

i. What is C#.NET? Write down various features of C#.NET.
ii. Differentiate: boxing and unboxing.
iii. List out names of any four Dialog controls of C#.NET.
iv. Write full-form of : MDI, CLR, CLS and BCL.

Q-2 [A] Explain .NET architecture with its diagram. Write down advantages and disadvantages of .NET framework.   **[5]**

[B] Explain – ".NET features and Applications supported in .NET"   **[5]**

OR

[B] What is Array? Explain the way of creation and processing 1-dimensional array using C#.NET with an example.   **[5]**

Q-3 [A] Explain foreach and while statements with its purpose, syntax and example.   **[5]**

[B] What is Form? Write at least four important properties, two methods and two events of a form object with their purpose.   **[5]**
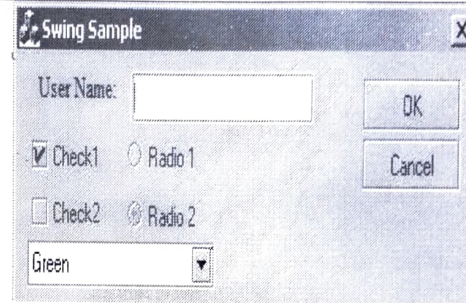
OR

[B] Explain Checkbox and Listbox controls.   **[5]**

*** The End ***

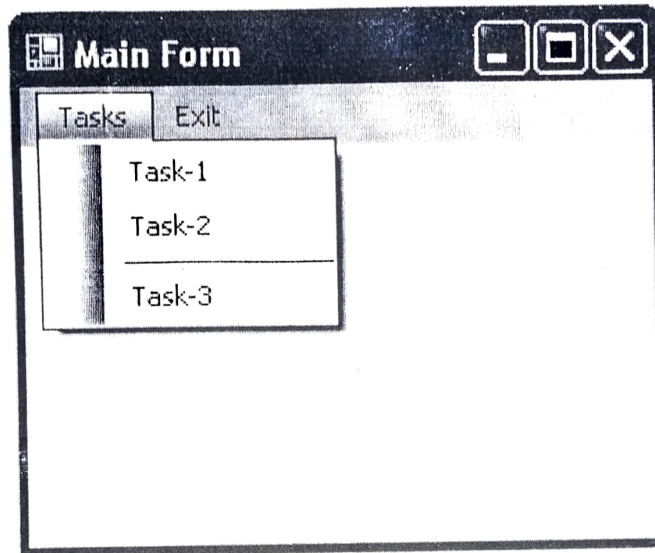| Q.1	Write a Swing application to have controls in it as shown in the image. It must have Label, text field, button. Check box, radio button and combo box for various colors. When a user clicks on "OK" button, it must print the data user have provided for control. If user clicks on "Cancel" button then application must exit.	25
Q.2	Create two hyperlinks on home page. First link opens a form to accept email id, name, mode of transport (Air, Rail, Road, use radio button) and name of the tourist destination user wants to visit. Store the information in database. Clicking on second link, showcases count of each destination entered by users.	25

Time: 2 Hours   **Marks: 30**

Q-1 Create a Window Based Application (**Project Name : Q1PID**, where **PID** indicate your   **[30]**
Permanent ID) using Visual C#.NET for performing the following:

Design the following menu in the startup window and assign the title for this form as "**Main Form**" :

TASK-1 : Tic-Tac-Toe is a pencil and paper, two player game where, the two players, in turn mark the spaces in a 3x3 grid, with their respective symbols, O and X. The player who succeeds in getting three of his in a horizontal, vertical or diagonal row wins. If none of them gets three in a row, the game ends in a draw. Every turn the aim of the player is to either complete his "three" or prevent the other player from completing his "three". Design appropriate interface for Tic-Tac-Toe game and provide the necessary functionality.

TASK-2 : Read a string using Textbox. Characters within a string may be letters (upper and lower case characters), digits and special characters. Check whether the input string is palindrome or not by considering only letters (upper and lower case) only. Ignore the case while comparing each character. If the input string is palindrome, display message like "Yes" otherwise display "No".

For example, if the input string is

        M@#ala4 5yalam.

The above string is a palindrome string.

The following string is not a palindrome string.

        Keep!!! Silence.

TASK-3 : Display a message like "**Under Development**".

* * * The End * * *

P. G. Department of Computer Science and Technology
MCA - II Internal Examinations
PS02EMCA57 Cyber Security
Saturday, 15th April, 2023
Time: 11:00 am to 12:30 pm   Max. Marks: 30

Q-1 **Choose the most appropriate option for each question:**   **[4]**

1. When a person is harassed repeatedly by being followed, called to he/she is target of
_____.
   - (A) Stalking
   - (B) Phishing
   - (C) Trojan Horse
   - (D) Virus

2. DES algorithm performs _____ rounds.
   - (A) 4
   - (B) 16
   - (C) 12
   - (D) 8

3. Full form of AES is _____.
   - (A) Advanced Encoding Standard
   - (B) Advanced Encryption System
   - (C) Advanced Encryption Standard
   - (D) Advanced Encoding System

4. Which of the following is not an antivirus program?
   - (A) QuickHeal
   - (B) McAfee
   - (C) Nortan
   - (D) Office 365

Q-2 **Answer the following questions (ANY THREE):**   **[6]**

1. Define: Cybercrime & Cyber Security
2. Explain The Indian ITA-2000 in brief.
3. What do you mean by message digest? List two name of message digest algorithms.
4. Full form of DoS & HTTPS

Q-3 **Answer the following questions:**

A. Explain Social engineering and Botnet in detail.   **[5]**

B. Explain following terms: **[5]**
   Debit card fraud, Cyber defamation, Cyber stalking, Pornographic offenses & Forgery

OR

B. Explain following terms: **[5]**
   Software Piracy, Salami attack, Spamming, Phishing & Password sniffing

Q-4 **Answer the following questions:**

A. List symmetric key algorithms. Explain any one in detail.   **[5]**

B. Explain password cracking in detail.   **[5]**

OR

B. Explain Digital certificate **or** Message digest in detail.   **[5]**

Time : 1½ Hours   Marks : 30

Q-1 [A] Choose the most appropriate answer among the given options.   **[4]**

[i]   Software errors during coding are known as:
[A] Bugs   [B] Defects   [C] Mistakes   [D] Failures

[ii] Equivalence class testing is related to _____ testing.
[A] Mutation   [B] Data Flow   [C] Functional   [D] Structural

[iii] The Testing of the software with real data in real environment is known as _____ testing.
[A] Alpha   [B] Beta   [C] System   [D] Integration

[iv] Benefits of effective test includes -
[A] Reusable test cases
[B] Improved software quality
[C] Improved User Experience
[D] All of these

[B] Do as directed (ANY THREE) :   **[6]**
i.   What is Software Testing? Which phase consumes maximum effort to fix an error?
ii.   List down various phases of STLC.
iii. Differentiate: Manual Testing and Automated Testing.
iv.   What is Test Case? Give an example of Test Case.

Q-2 [A] Why software testing is necessary? Discuss various levels of software testing.   **[5]**

[B] Explain various principles of Software Testing.   **[5]**

<div align="center">**OR**</div>

[B] Explain testing process with an example.   **[5]**

Q-3 [A] Define the term 'White-box Testing'. Write down various white-box testing techniques. Explain any one of them with an example.   **[5]**

[B] Explain Decision Table Testing techniques with an example.   **[5]**

<div align="center">**OR**</div>

[B] Explain various Test Case Selection Criteria.   **[5]**

<div align="center">* * * The End * * *</div>

P. G. Department of Computer Science and Technology
Sardar Patel University
Master of Computer Applications
MCA-II Internal Examinations
PS02EMCA60 Embedded Systems and IoT
Wednesday, 6th April, 2022

Time: 1 Hour 30 Minutes   Max. Marks: 30

Q-1 Choose the most appropriate option for each question: [4]

1. Which of the following is not a type of real time systems?
   A) Hard   B) Soft
   C) Hybrid   D) Medium
2. What is Ohm's law?
   A) $V = I R$ B) $I = V R$
   C) $R = V I$ D) None of these
3. Which of the following is not a communication technology used with IoT?
   A) RFID   B) NFC
   C) ZigBee   D) None of these
4. What is the full form of SoC?
   A) System own Service   B) Service on System
   C) System on Chip   D) None of these

Q-2 Answer the following questions (ANY THREE):   [6]

1. What is the full form of IoT? Differentiate between embedded systems and IoT.
2. List the operating systems that can run on the Raspberry Pi.
3. How do you identify the cathode and anode of an LED? Why do we keep a resistor in series with an LED?
4. Name the three leads of a transistor. Which lead is used to control the current?

Q-3

A. Write the restrictions / limitations in an embedded systems environment.   [5]
B. Explain with examples different types of real time systems.   [5]

OR

B. Describe in 3-4 sentences any five applications of embedded systems and IoT in [5] home.

Q-4

A. Describe in 3-4 sentences any five applications of embedded systems and IoT in [5] manufacturing and retail.
B. Explain the use of a relay with a figure. What are NO and NC terminals?   [5]

OR

B. Write a Python program to control an LED using a Raspberry Pi.   [5]

*****