ST. XAVIER'S COLLEGE
KOLKATA
(AUTONOMOUS)

3rd SEMESTER EXAMINATION
DECEMBER 2021
M. Sc. COMPUTER SCIENCE

CMSM4356

LABORATORY 5: INTERNET TECHNOLOGIES II AND ARTIFICIAL INTELLIGENCE LAB

Saturday, December 04, 2021
12:00 NOON to 4:00 PM
4 hours
Full Marks : **80**

PLEASE READ THESE INSTRUCTIONS BEFORE YOU START WRITING:

1. Of the questions attempted, the answers to only the first required number of questions (as stipulated in the question paper) will be evaluated. **So please do not attempt extra questions**.
2. Use fountain pen or ball-point pen of **blue** or **black ink**.
3. Write **(not type)** the answers legibly, in your own words as far as practicable, on A4 size sheets.
4. Save the pages of your answer sheets (hand-written document) to a single PDF file and name the document accurately i.e. **Roll No_Paper Code.PDF** (example: 147_PH36141T).
5. Send the PDF file to the following email address **(in REPLY mode) within 30 minutes of the completion of the examination**: **CMSM43562122@sxccal.edu**
6. The scanned answer scripts should have **enough clarity** to enable evaluation.
7. On top of each page **handwrite** the following information: **Name, Roll Number, Paper Code, Date,** and **Page Number**
8. No multiple submissions would be allowed.

The marks are given in **brackets [ ]** at the end of each question or part question.

The question paper consists of **3** pages.

Of the questions attempted, the answers to only the first required number of questions (as stipulated in the question paper) will be evaluated.
So, PLEASE DO NOT ATTEMPT EXTRA QUESTIONS.

GROUP A

(Instructions:
i. Screen shots of the outputs are to be provided.
ii. Source codes of all the original files are to be submitted. Students are asked to keep all their required files (html/php/jsp/servlet etc) in a folder named according to their roll number, files for corresponding questions are to be kept in a subfolder to be named as the question number within the roll number folder, zip the roll number folder (ONLY ZIP formats) and send it to the given mail id.)

SECTION A: SHORT QUESTIONS

Answer ANY TWO questions. **[5×2=10]**

1. Write a **Servlet program** to print the Name and Address of a person using Sessions.

2. Write a **JSP code** to accept an integer argument from HTML form and print the Hexadecimal equivalent.

3. Create a form using HTML accepting the details of a student having the following fields:
   Name (text box), Guardians Name (Text Box), Address (Text area), Gender (Radio button), Course(s) Applied for. (Check Box). Display the data filled up through the form in another HTML file using **PHP.**

4. Write a program in **PHP** to copy content of one file to another file.

SECTION B

Answer ANY ONE question. **[1×30=30]**

5. a) Write appropriate **JSP** code to insert at least 6 records in the table **Emp** within the **Employee** database. The Emp table will have the fields (Eid, EName, Edept, Esalary and Econtact (10-digit mobile number))
   b) Write HTML code to accept Input file name, output file name, old string, new string from a user. Write a **PHP** program that will read the input file and will search for old string and if it is found then it will display "Pattern found." and will replace it by new string. The program will display how many times the pattern found, and the number of times it was replaced by new pattern. **[15+15]**

6. Write a program to connect to a **Course** database.
   a) i) Write appropriate **PHP code** to insert at least 6 records in the table **Student** within the Course database.
   The Student Table will have the fields:
   (SRoll, S_Name, S_Course, S_DOJ, Course_completed (Y/N))
   The records will be displayed in a new HTML page in a tabular format
   ii) Accept a student roll from a HTML page and delete the corresponding record of that student from the Student table.
   b) Write a **servlet** program to display the hit count of a given HTML page
   The number of times the HTML page will be refreshed or accessed will be displayed in a line.
   [(10+10)+10]

GROUP B

NOTE: Your final pdf file should contain the hand written code of the Prolog programs and the output screen shots.

Answer <u>QUESTION 7</u> and <u>ANY TWO</u> from the rest.

7. Answer **<u>ANY TWO</u>** of the following: **[2×5]**
   a) Write a Prolog program to find out the mean value of a list.
   b) Write a Prolog program to merge two sorted lists given as the input.
   c) Write a Prolog program to find the union of the two given lists.
8. a) Write a Prolog program to rotate a given list N places to the left.
   b) Write a Prolog program to perform selection sort on a given list. **[5+10]**

9. a) Write a Prolog program to delete an item from a list where the position of the item is given in the clause.
   b) Define a predicate add_up_list(L,K) which, given a list of integers L, returns a list of integers, K in which each element is the sum of all the elements in L up to the same position. (If L = [4, 5, 6] then K = [4, 9, 15]) **[5+10]**

10. Create a database in Prolog where Mary, Sandra, Juliet, Lisa are female members of the family. Peter, Paul, Dick, Bob and Harry are the male members. Define a predicate as a parent with two input arguments where Bob and Juliet are the parents of Lisa, Marry and Paul, Peter and Lisa are the parents of Harry and Marry is the parent of Dick and Sandra. Now write Prolog rules to define the following family relations.
    i) Sister
    ii) Grand Parent
    iii) Cousin **[15]**

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