



ST. XAVIER'S COLLEGE
KOLKATA
(AUTONOMOUS)

2nd SEMESTER EXAMINATION
JUNE - JULY 2021
M. Sc. COMPUTER SCIENCE

CMSM4256

Saturday, July 03, 2021

1:00 PM to 5:00 PM

4 hours

Full Marks : 80

**LABORATORY 3: SOCKET
PROGRAMMING,
MICROPROCESSOR AND
MICROCONTROLLER LAB**

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:** cmsm42562021@sxccal.edu
6. In the subject field of your email, please write "**Answer Script – Roll No, Paper Code**" (example: "Answer Script – 147, PH36141T").
7. The scanned answer scripts should have **enough clarity** to enable evaluation.
8. On top of each page **handwrite** the following information: **Name, Roll Number, Paper Code , Date, and Page Number**
9. 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

Answer **ANY TWO**: (5×2=10)

1. Write socket applications to do the following: (5)
 - a. Send a string to the Client end from the Server end.
 - b. In the server end, print the string in capital case.
2. Write socket applications to do the following: (5)
 - a. Send a string to the Server end from the Client end.
 - b. In the client end, print the reverse string.
3. Write socket applications to do the following: (5)
 - a. Send a string to the Client end from the Server end.
 - b. In the server end, print the different words (lexicographically sorted) in different lines.

Answer **ANY TWO**: (15×2=30)

4. Write socket applications to do the following: (15)
 - a. Send some integers to the Client end from the Server end.
 - b. In the server end, find the non-prime numbers among the received numbers.
 - c. Send the non-prime numbers to the Server.
 - d. Print the non-prime numbers in the Server end.
5. Write socket applications to do the following: (15)
 - a. Send a sentence to the client from the server.
 - b. Print all the words starting with any vowel at the Client's end.
 - c. Send these words back to the server.
 - d. Create a file at the server's end containing only these words.
6. Write socket applications to do the following: (15)
 - a. Send an image to the client from the server.
 - b. Create a copy of the image at the client end.
 - c. Use the required protocol for sending an image at once.
 - d. Compare the size of the image files at both ends.

GROUP B

Instruction : Students should write the program code as per requirement. Execute the code using simulator and attach the screenshot of the corresponding output with the answer script.

Answer **QUESTION 7** and **ANY TWO** from the rest.

7. Answer **ANY TWO**:
 - a) Differentiate between CJNE and DJNZ using an example of your choice. (5)
 - b) Explain the process of implementing a delay in your program. (5)
 - c) Show the application of various Jump instructions using suitable examples. (5)

8. Write an assembly language program to search an element using binary search method. The data set is stored in internal memory in an unsorted order. (15)
9. Write an assembly language program to perform the following operation :
 $f(x) = \sum_{i=1}^n n! * x^n$ where $n = 4$. (15)
10. There are two functions given below:
 $f(x) = x^2 + 3$
 $f(y) = 2 * y + 9$
 Write an assembly language program to find the sum of these two functions where the value of $x = 3$ and $y = 5$. (15)
