

SP-IV/Com.Sc./404/SEC-2/19

**B.Sc. 4th Semester (Programme) Examination, 2019****COMPUTER SCIENCE****(HTML Programming)****Paper : 404/SEC-2****Course ID : 41510****Time: 1 Hour 15 minutes****Full Marks: 25**

*The figures in the right hand side margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.*

*The figures in the right hand side margin indicate marks.*

*The questions are of equal value.*

1. Answer *any five* questions: 1×5=5
- (a) What is the default direction marquee tag in HTML?
- (b) Which tag is used to create background sound?
- (c) Write down full form of GIF and JPEG.
- (d) What is CGI?
- (e) What do you mean by hyperlink?
- (f) What is webpage?
- (g) What attribute is used to link in a document? Give example.
- (h) What is container tag? Give example.
2. Answer *any two* questions: 5×2=10
- (a) Explain any five text formatting tags with examples. 5
- (b) What do you mean by FRAME? How do you create multiple frames on a page? 5
- (c) What do you mean by list? What are the different types of lists available in HTML? Give examples for each one. 2+3=5
- (d) What is FORM? What are the different types of controls that can be placed on a FORM? Design a simple form with at least four controls on it. 1+4=5


3. Answer *any one* question:

10×1=10

(a) What is CSS? Explain different tags and attributes related with table. Also design a table with those tags and attributes.

2+8=10

(b) Design the following using HTML:

<u>BANKURA TOURISM</u>	
1. Places	
(a) Bishnupur	
(b) Susunia	
(c) Joyrambati	
(d) Mukutmunipur	

What are the purposes of following attributes of <IMG> tag:-

6+4=10

SRC, ALI, HEIGHT, WIDTH.

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**B.Sc. 4th Semester (Programme) Practical Examination, 2019****COMPUTER SCIENCE****Paper : 404/SEC-2****Course ID : 41520****Time: 2 Hours****Full Marks: 15**

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**Group-A****(HTML Programming)**

Viva + LNB = 5, Practical = 10

Attempt *any one*:

1. Create an HTML documents as follows:

Frame 1	
Frame 2	Frame 3

2. Create a table with the following data:

Name	Roll	Marks
AB	02	200
GK	05	300
PB	06	250

Give a caption "Std Result" below the table.

3. Create the two webpage having background and in the first page make scrolling "welcome to my site" and make hyperlink to "click here to see my details" when click in is display the second page. In the second page you must give your name, address and photo.
4. Create a HTML page as follows:  
Your personal information using HTML table, image and link page.
5. Create a HTML page as follows:  
Use heading with bold and underline and make list of 5 persons name with different font color.
6. Create an HTML document with table to show your class routine.

7. Create a HTML document with frame as follows:

about

dept 1	This frame would show the content according to the line clicked on the left frame.
dept 2	
dept 3	

8. Create the HTML page:

Month	Savings	Savings for Holidays
Jan	\$ 100	\$ 50
Feb	\$ 80	

**Group-B**  
**(XML Programming)**

Viva + LNB = 5, Practical = 10

Attempt *any one*:

1. To create a simple XML document to display the address book.
  2. To create a XML document and database for importing and exporting XML document into database.
  3. To create a XML program for Internal DTD (Document Type Definition) creation.
  4. To create a XML program for External DTD (Document Type Definition) creation.
  5. To create a program for XML Schema creation and display element and attributes.
  6. To create a parsing XML document using DOM (Document Object Model) parser.
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SP-IV/Com.Sc./401/C-1D/19

**B.Sc. 4th Semester (Programme) Examination, 2019****COMPUTER SCIENCE****(Computer System Architecture)****Paper : 401/C-1D****Course ID : 41518****Time: 1 Hour 15 minutes****Full Marks: 25**

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*The questions are of equal value.*

1. Answer *any five* questions from the following: 1×5=5
  - (a) What is an instruction set?
  - (b) What is combinational circuits?
  - (c) What is register?
  - (d) Convert  $(AB·5F)_{16} = (?)_{10}$ .
  - (e) Find out 2's complement of  $(10110)_2$ .
  - (f) What is floating point representation?
  - (g) Give example of two Universal Gates.
  - (h) What is EEPROM?
  
2. Answer *any two* questions from the following: 5×2=10
  - (a) Discuss about Direct addressing and Indirect addressing.
  - (b) Discuss different types of Instructions.
  - (c) Difference between primary and secondary memory.
  - (d) Write down the truth table and logic circuit of J-K flipflop.
  
3. Answer *any one* question from the following: 10×1=10
  - (a) What is Decoder? Write down truth table and logic circuit of  $3 \times 8$  Decoder.
  - (b) Discuss different types of system bus.

**B.Sc. 4th Semester (Programme) Practical Examination, 2019**

**COMPUTER SCIENCE**

**(Computer System Architecture)**

**Paper : 401/C-1D**

**Course ID : 41528**

**Time: 2 Hours**

**Full Marks: 15(10+5)**

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*The questions are of equal value.*

Answer *any one* from the following:

10×1=10

1. Implement X-OR Gate using NAND Gates.
  2. Implement X-OR Gate using NOR Gates.
  3. Implement Half-Adder using Basic Gates.
  4. Implement Half-Adder using NAND Gates.
  5. Implement the Function: using NAND Gates,  $F(A, B, C) = AB + C'$ .
  6. Implement the Function: using NOR Gates,  $F(A, B, C) = C + A'B$ .
  7. Implement  $2 \times 1$  Multiplexer using Basic Gates.
  8. Implement a 2-bit Comparator using Basic Gates.
  9. Implement S-R Flip-Flop using NAND Gates.
  10. Implement a 3-bit Even Parity Checker using X-OR Gates.
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SH-IV/Com.Sc./405/SEC-2(PR)/19

**B.Sc. 4th Semester (Honours) Practical Examination, 2019****COMPUTER SCIENCE****Paper : 405/SEC-2****Course ID : 41525****Time: 2 Hours****Full Marks: 15**

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**Group-A**  
**(HTML Programming)**

Viva + LNB = 5, Practical = 10

Attempt *any one*:

1. Write a set of frames to show the following data:

Fruits	Select any of the item shown on the left.
Animals	
Birds	

2. Create a table with the following data:

Community	Male	Female
OBC	35	40
SC/ST	23	12
GEN	12	10

3. Create a table with the following data:

Life expectancy by Current Age					
65		40		20	
Men	Women	Men	Women	Men	Women
82	85	78	82	77	81

4. Create the following list HTML:

<p><b>INDIAN CRICKET TEAM</b></p> <p><b>BATSMAN</b></p> <p>1. SACHIN</p> <p>2. RAHUL</p> <p>3. SOURAV</p> <p><b>BOWLER</b></p> <p>1. B. KUMAR</p> <p>2. M. SAMI</p>
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Create a hyperlink with INDIAN CRICKET TEAM to “<http://www.icc.com>”.

5. Create an HTML documents as follows:

- (a) Create a scrolling text “Bankura University”.
- (b) Display any image below the scrolling text [400 × 300]
- (c) Display following text below the image:

<p><b>Courses</b></p> <ul style="list-style-type: none"> <li>• BA</li> <li>• BSC</li> <li>• BCA</li> </ul> <p>Click here for detail.</p>
--

Create a link with click to “<http://www.bankurauniv.ac.in>”.

6. Create an HTML document with table to show your class routine.

7. Create an HTML documents as follows:

Frame 1	
Frame 2	Frame 3

8. Create the HTML page:

Month	Savings	Savings for Holidays
Jan	\$ 100	\$ 50
Feb	\$ 80	



**Group-B**  
**(XML Programming)**

Viva + LNB = 5, Practical = 10

Attempt *any one*:

1. To create a XML program for Internal DTD (Document Type Definition) creation.
  2. To create a program for XML schema creation and display element and attributes.
  3. To create a parsing XML document using DOM (Document Object Model) parser.
  4. To create a XML program for External DTD (Document Type Definition) creation.
  5. To create a simple XML document to display the address book.
  6. To create a XML document and database for importing and exporting XML document into data base.
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**SH-IV/Com.Sc./405/SEC-2/19****B.Sc. 4th Semester (Honours) Examination, 2019****COMPUTER SCIENCE****(HTML Programming)****Paper : 405/SEC-2****Course ID : 41515****Time: 1 Hour 30 Minutes****Full Marks: 25**

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1. Answer *any five* questions: 1×5=5
- (a) Write the full form of HTML.
  - (b) Why HTML is called as mark-up language?
  - (c) State an application area of HTML.
  - (d) State some limitations of HTML based web page designing.
  - (e) What are the major sections of a HTML document?
  - (f) What do you mean by HTML tag?
  - (g) What is the use of HTML forms?
  - (h) What is hypertext?
2. Answer *any two* questions: 5×2=10
- (a) Discuss hyper linking feature of HTML in brief.
  - (b) Discuss how to use an inserted image as a link.
  - (c) Create a table to display your academic records (Do not mention your name).
  - (d) Show the particulars of various books that you are studying in semester IV for your chosen subjects using lists (Do not mention your name).
3. Answer *any one*. 10×1=10
- (a) Discuss any five tags used in HTML in brief.
  - (b) Design a form to open a new account in a bank.
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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**COMPUTER SCIENCE**

**(Database Management System)**

**Paper : 403/C-10**

**Course ID : 41523**

**Time: 2 Hours**

**Full Marks: 15**

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*The questions are of equal value.*

1. Perform *any one* of the following experiments: 10×1=10
- (a) Create a table VOTER (EPIC-Card-No, Name, Date-of-Birth, VILL, PO, DISTRICT)  
Populate the table with at least 5 records.  
The write queries for:
- (i) Finding the name of oldest voter.
  - (ii) Finding EPIC-Card-No of youngest voter.
  - (iii) Finding average age of voters.
- (b) Create a table Book (ISBN-No, Title, Author, Subject, Price)  
Populate the table with at least 5 records such that there would be at least one book for each of Science, Arts and Commerce subjects.  
Write queries for:
- (i) Sorting the books on lexicographic order of their titles.
  - (ii) Finding Author's name for least price book.
- (c) Create a table STUDENTS (Roll-No, Name, Subject1, Subject2, Subject3, Date-of-Birth) to maintain the records of all BSC program students for semester IV of your college. Populate the table with sufficient no. of records to answer the following queries to display:
- (i) Name of all students having age  $\geq 20$  years.
  - (ii) Roll-No. of all students having Mathematics subject.
- (d) Create two tables as:  
STUDENT1 (College-Roll, Name, VILL, Regd-No)  
STUDENT2 (Regd-No, University-Roll)  
Populate the two tables. Determine Primary Key and Foreign Key. Then write a query to display studentwise college-Roll and University-Roll

(e) Create three tables as:

STUDENT1 (College-Roll, Name, VILL, Regd-No)

STUDENT2 (Regd-No, University-Roll)

STUDENT3 (University-Roll, CGPA)

Populate the three tables with sufficient no. of records and write a query to display CGPA of students with respect to their College-Rolls.

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SH-IV/Com.Sc./403/C-10/19

**B.Sc. 4th Semester (Honours) Examination, 2019****COMPUTER SCIENCE****(Database Management System)****Paper : 403/C-10****Course ID : 41513****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.**The figures in the right hand side margin indicate marks.**The questions are of equal value.*

1. Answer *any five* of the following: 1×5=5
- (a) Define DBMS.
  - (b) Write two advantages of relational model of a database.
  - (c) Define Primary Key. How you can convert an weak entity set into a strong entity set?
  - (d) Write two differences between DDL and DML.
  - (e) What is functional dependency?
  - (f) What is Metadata? Give example.
  - (g) What is meant by data redundancy?
  - (h) What is foreign key?
2. Answer *any two* of the following: 5×2=10
- (a) What is transaction? Explain ACID properties of a transaction. 1+4=5
  - (b) What is meant by normalization of a database relation? Why do we have to make relations normalized? Define 3NF. 1+2+2=5
  - (c) How data is stored in a B + tree file structure of a DBMS. Explain the pros and cons of a B + tree file structure of a DBMS. 2+3=5
  - (d) Explain with an example how presence of partial and transitive dependencies in relations influence the database design. 5
3. Answer *any one* of the following: 10×1=10
- (a) What is DBA? Explain the functions of DBA. Briefly explain the 3-tier architecture of a DBMS. 1+4+5=10

- (b) Consider the following relational schema and answer following queries in relational algebra as well as in SQL:

Employee (*Person-Name*, Street, City)

Works (*Person-Name*, *Company-Name*, Salary)

Company (*Company-Name*, City)

Manages (*Person-Name*, *Manager-Name*)

- (i) Find the name of all employees who work for first bank Corporation.
- (ii) Find the name, street address and cities of residence of all employees who work for first bank Corporation and earn more than Rs. 10,000 per month.
- (iii) Find the name of all the employees who live in the same city as the Company for which they work.
- (iv) Give all managers a 10% salary raise, unless the salary would be greater than Rs. 100,000. In such a case give only a 3% raise.
- (v) Find the company with the most employees. 2×5=10

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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**COMPUTER SCIENCE**

**(Software Engineering)**

**Paper : 402/C-9**

**Course ID : 41522**

**Time: 2 Hours**

**Full Marks: 15**

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Experiment = 10 marks and LNB + Viva = 5 marks

Solve *any one* of the following experiments:

1. Implement a criminal record management system for jailors, police officers and CBI officers.
  2. Implement a DTC Route Information system to show the online information about the bus routes and their frequency and fares.
  3. Implement a 'car pooling' system to maintain a web based intranet application that enables the corporate employees within an organization to avail the facility of carpooling effectively.
  4. Implement a Patient Appointment and Prescription management system.
  5. Prepare an Organized Retail Shopping Management system.
  6. Create an Examination and Result computation system.
  7. Implement an Automatic Internal Assessment system.
  8. Design a wholesale Management system.
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SH-IV/Com.Sc./402/C-9/19

**B.Sc. 4th Semester (Honours) Examination, 2019****COMPUTER SCIENCE****(Software Engineering)****Paper : 402/C-9****Course ID : 41512****Time: 1 Hour 15 Minutes****Full Marks: 25**

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1. Answer *any five* questions: 1×5=5
    - (a) Define the term software reliability.
    - (b) Write down some advantages of waterfall model.
    - (c) State various components of a software.
    - (d) Differentiate between verification and validation.
    - (e) What is process framework?
    - (f) Define software measurement.
    - (g) What is data dictionary?
    - (h) What is software prototyping?
  
  2. Answer *any two* questions: 5×2=10
    - (a) Explain COCOMO model with example.
    - (b) Explain spiral model in detail.
    - (c) Distinguish between 'process' and 'project' metrics with example.
    - (d) Explain how software quality is assured through software metrics.
  
  3. Answer *any one* questions: 10×1=10
    - (a) Why software testing is required? Differentiate between White box testing and Black box testing. 4+6=10
    - (b) What is software design? Explain objectives and principles of software design. 3+7=10
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**B.Sc. 4th Semester (Honours) Practical Examination, 2019**

**COMPUTER SCIENCE**

**(Analysis and Design of Algorithms)**

**Paper : 401/C-8**

**Course ID : 41521**

**Time: 2 Hours**

**Full Marks: 15**

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*The questions are of equal value.*

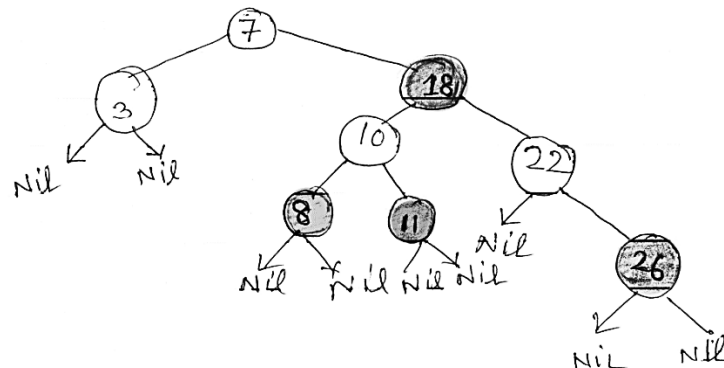
LNB + Viva = 5 marks. Experiment = 10 marks.

Perform any one experiment:

1. Implement Insertion Sort algorithm.
  2. Implement Radix Sort algorithm.
  3. Implement merge sort algorithm.
  4. Implement heap sort algorithm.
  5. Write a program to determine the minimum spanning tree of a graph.
  6. Implement quick sort algorithm.
  7. Create a red-black tree and perform following operations on it:
    - (i) Insert a node
    - (ii) Delete a node
  8. Implement BFS in a graph.
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**B.Sc. 4th Semester (Honours) Examination, 2019****COMPUTER SCIENCE****(Analysis and Design of Algorithms)****Paper : 401/C-8****Course ID : 41511****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.**The figures in the right hand side margin indicate marks.**The questions are of equal value.*

1. Answer *any five* the following: 1×5=5
- Write difference between  $\theta$  notation and O notation.
  - Write the worst case time complexity of insertion sort and heap sort.
  - What is meant by amortized analysis?
  - For what type of problems dynamic programming algorithms are useful?
  - What is meant by Greedy algorithm?
  - Define Red-Black tree.
  - What is the basic difference between Red-Black tree and Binary Search tree?
  - What is the basic principle of counting sort?
2. Answer *any two* of the following: 5×2=10
- Compare between dynamic programming approach and divide and conquer approach. Write the basic steps to develop a dynamic programming algorithm. Write the name of a problem that can be solved using dynamic programming algorithm. 2+2+1=5
  - Calculate the time complexities of quick sort in case of worst case partitioning and best case partitioning. What is the best case running time of merge sort? 2+2+1=5
  - Write the properties of a red-black tree. Insert 2, 6, 13 in the following red-black tree. [Shaded nodes are red] 2+3=5

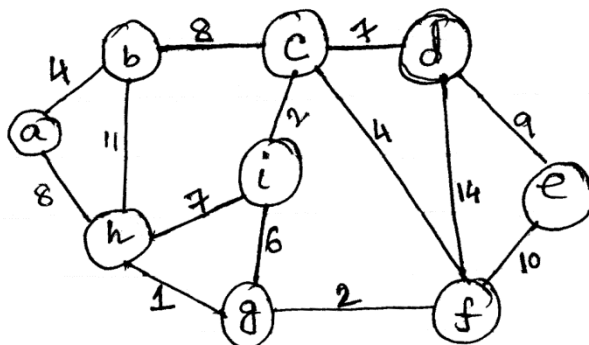


- (d) What is heap? Write an algorithm to construct a heap from an array of data elements. 1+4=5

3. Answer any one:

10×1=10

- (a) Write Prim's algorithm. Construct a minimum spanning tree for the following graph using Prim's algorithm.



What is the minimum weight of your spanning tree? Is there any other MST with same weight? 3+4+1+2=10

- (b) Compare between breadth first search and depth first search. Write pseudo code for BFS. Explain your pseudo-code with suitable example. 2+5+3=10

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SH-IV/Com.Sc./404/GE-4/19

**B.Sc. 4th Semester (Honours) Examination, 2019****COMPUTER SCIENCE****(Programming in Python)****Paper : 404/GE-4****Course ID : 41514****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.**The figures in the right hand side margin indicate marks.**The questions are of equal value.*

1. Answer *any five* of the following: 1×5=5
- What are literals in python?
  - What is the difference between tuple and list data type in python?
  - What is the use of '/' operator in python?
  - What do you mean by primary memory? Give example.
  - Why RAM is volatile memory?
  - What is the full form of PROM?
  - What is interpreter?
  - Write a python code segment to print 1 to 10 using 'for' statement.
2. Answer *any two* of the following: 5×2=10
- Write a python program to initialize a  $m \times n$  matrix by taking data from the keyboard.
  - What are the different types of computer? Explain with example.
  - Describe memory hierarchy of computer with diagram.
  - Draw the flowchart to calculate the sum of digits of a given number.
3. Answer *any one* of the following: 10×1=10
- Draw the basic framework of computer (Von Neumann Architecture). Describe each part briefly with example.
  - Write an algorithm to check whether a given number is odd or even. Write a python program to print first n prime numbers. 5+5=10

**B.Sc. 4th Semester (Honours) Practical Examination, 2019****COMPUTER SCIENCE****(Programming in Python)****Paper : 404/GE-4****Course ID : 41524****Time: 2 Hours****Full Marks: 15***The figures in the right hand side margin indicate full marks.**Candidates are required to give their answers in their own words  
as far as practicable.**The figures in the right hand side margin indicate marks.**The questions are of equal value.*Answer *any one* from the following:

10×1=10

1. Write a Python program to construct the following pattern for  $n$  number of lines, using a nested for loop.

```

1
22
333
4444
55555

```

2. Write a Python program to create the multiplication table (from 1 to 10) of a given number.

*Expected Output:*

Input a number: 6

```

6 × 1 =6
6 × 2 = 12
6 × 3 = 18
6 × 4 = 24
6 × 5 = 30
6 × 6 = 36
6 × 7 = 42
6 × 8 = 48
6 × 9 = 54
6 × 10 = 60

```

3. Write a program that reads an year (integer) value and prints — leap year or —not a leap year.
4. Write a python program to check whether a given number is prime or not.
5. Write a function that takes an integer  $n$  as input and calculate the value of  $1 + 1/1! + 1/2! + 1/3! + \dots + 1/n!$
6. Write a python function that takes a string input and checks if it is a palindrome or not.

7. Write a list function to convert a string into a list, as in list 'abc' gives [a, b, c].
  8. Write a program to generate Fibonacci series up to n terms.
  9. Write a program to print factors of a given number.
  10. Write a method to calculate GCD of two numbers.
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