

NOTICE

14/12/2021

This is to inform to all the students (Honours, Program, GE) of Computer Science of Sukanta Mahavidyalaya that the **Hard Copy of Assignments** for the Internal Assessments shall be submitted as per the following schedule in the Department of Computer Science:

Sl no.	Semester	Date
01	1 st semester (Honours, Program, GE)	21/12/2021
02	3 rd semester (Honours, Program, GE)	18/12/2021
03	5 th semester (Honours, Program)	18/12/2021

N.B.: All assignments are attached herewith.

Amit Choudhary
14/12/2021

Am
14.12.21

Sukanta Mahavidyalaya

Department of Computer Science

Dhupguri, Jalpaiguri

Subject: Programming Fundamentals using C

Paper Code: CC 12

Sem: 1st (Hons)

FM: 40

1. What is algorithm? Write an algorithm to find the sum of first 10 integers. [2+3=5]
2. What is macro? Write a C program that will calculate the volume of a cube using macro. [1+4=5]

3. What is function in C programming? Write a C program to find the GCD of two numbers using function. [2+4=6]
4. What is array in C programming? Write a C programming to check whether a given string is palindrome or not. [2+5=7]
5. Define switch case in C programming? Write a C program to calculate addition, subtraction, multiplication and subtraction of two numbers using switch case. [2+5=7]
6. What is type casting in C programming? Explain with suitable examples. Write a C programming to print the following pattern. [2+4+4=10]

a) *

```
 **
***
****
*****
```

b) 1

```
 2 3
 4 5 6
 7 8 9 10
```

BSc Honours 1st Semester Examination, 2021
Computer Science
CC13: Computer System Architecture

Full marks: 40

Answer the following questions

1. (a) Write down the laws of “Boolean Algebra”. 4
- (b) Draw k-map for the following expression:
$$A(X, Y, Z) = \sum(0, 1, 5, 6)$$
 3
2. (a) State and prove the laws of DeMorgan’s. 4
- (b) What are the Universal Logic Gates. Explain their importance. 3
3. (a) Design a half-adder. 4
- (b) How to implement a 4 x 1 Multiplexer? Discuss. 3
4. (a) Convert the following as specified :
- (i) $(512)_{10} = ()_2$
- (ii) $(11100011)_2 = ()_8$
- (iii) $(6AF)_{16} = ()_2$ 3
- (b) Write in brief about the following :
- (i) Decoder
- (ii) Binary Parallel Adder 4
5. (a) Differentiate combinational logic circuits and sequential logic circuits. 3
- (b) Explain the different types of flip-flops. 4
6. (a) What are “Triggers” ? 2
- (b) How to design a counter? Explain in detail. 3

BSc Program 1st Semester Examination, 2021
Computer Science
DSC: Computer System Architecture

Full marks: 40

Answer the following questions

1. (a) Write down the laws of “Boolean Algebra”. 4
(b) Draw k-map for the following expression:
$$A(X, Y, Z) = \sum(0, 1, 5, 6)$$
 3
2. (a) State and prove the laws of DeMorgan’s. 4
(b) What are the Universal Logic Gates. Explain their importance. 3
3. (a) Design a half-adder. 4
(b) How to implement a 4 x 1 Multiplexer? Discuss. 3
4. (a) How encoder is different from decoder ? 3
(b) Explain the following terms:
 - (i) Registers
 - (ii) Ripple counters 4
5. (a) Define the “over flow-condition” in arithmetic operations. 3
(b) Give notation to represent any floating point number. What is ALU? Explain its role. 4
6. (a) How inter register transfer operation performed ? 2
(b) What do you mean by the term “Clocked Sequential Circuits” ? 3

BSc General Elective 1st Semester Examination, 2021
Computer Science
GE1A: Digital Electronics

Full marks: 40

Answer the following questions

1. (a) Write down the laws of “Boolean Algebra”. 4
(b) Draw k-map for the following expression:
$$A(X, Y, Z) = \sum(0, 1, 5, 6)$$
 3
2. (a) State and prove the laws of DeMorgan’s. 4
(b) What are the Universal Logic Gates. Explain their importance. 3
3. (a) Design a half-adder. 4
(b) How to implement a 4 x 1 Multiplexer? Discuss. 3
4. (a) Convert the following as specified :
 - (i) $(512)_{10} = ()_2$
 - (ii) $(11100011)_2 = ()_8$
 - (iii) $(6AF)_{16} = ()_2$ 3(b) Write in brief about the following :
 - (i) Decoder
 - (ii) Binary Parallel Adder 4
5. (a) Differentiate combinational logic circuits and sequential logic circuits. 3
(b) Explain the different types of flip-flops. 4
6. Write short notes on any two of the following:
 - (i) Subtractor
 - (ii) Don’t care conditions
 - (iii) Latch

(iv) Timing sequences

(V) ASCII code

5

ASSIGNMENT BASED INTERNAL ASSESMENT 2021
CC 31-3rd SEMESTER (CMSH)
DATA STRUCTURE

1. What is Data Structure and its type? 8X5=40
2. What is an array? Write an algorithm to insert an element in the middle of the array. .
3. What is stack? write algorithm for push and pop.
4. What is a linked list? ...explain doubly link list.
5. How are linked lists more efficient than arrays?
6. How are linked lists more efficient than arrays?
7. Discuss about hashing what do you mean by collision .
8. Explain linear probing .

BSc Honours 3rd Semester Examination, 2021
Computer Science
CC32: Operating Systems

Full marks: 40

Answer the following questions

1. What are the various services provided by Operating System? Explain in brief.

10

2. Compare the Linux and windows operating system.

10

3. Write short note on following:

a) Time Sharing Systems

b) Main Frame Systems

c) Parallel Systems

d) Real Time systems

10

4. Write short note on following:

a) Thrashing

b) Dead lock

c) CPU scheduling

d) Physical and virtual address space

10

BSc Honours 3rd Semester Examination, 2021
Computer Science
CC33: Computer Networks

Full marks: 40

Answer the following questions

Assignment

- | | |
|--|----|
| 1.a) What is a Router? Mention different types of routers with their operations. | 4 |
| b)What are the important properties of a bridge & router? | 6 |
| 2.What is collision? Discuss how CSMA/CD detects and handles collisions. | 10 |
| 3.a) What is meant by Ethernet? Mention its importance. | 4 |
| b)Mention some advantages & disadvantages of Ethernet with wireless connection. | 6 |
| 4.Discuss the OSI network model and explain the functions of each layer. | 10 |

Sukanta Mahavidyalaya
Department of Computer Science
Dhupguri, Jalpaiguri

Subject: Website Design with HTML and PHP

Paper Code: SEC 35TL (E2)

Sem: 3rd (Hons)

FM: 40

Answer all questions

PHP Functions

1. What is HTML? What are tags and attributes in HTML? [2+3=5]
2. What are void elements in HTML? What are different types of lists in HTML? [2+3=5]
3. What are the various formatting tags in HTML? [5]
4. What is PHP? Write few advantages of PHP Functions. [2+3=5]
5. What are the common usages of PHP? [4]
6. What are the different types of Array in PHP? [5]
7. In how many ways you can embed PHP code in an HTML page? [4]
8. What are the different types of PHP variables? [3]
9. How will you concatenate two strings in PHP? Explain with suitable examples. [4]

BSc Program 3rd Semester Examination, 2021
Computer Science
CC3: Computer Networks

Full marks: 40

Answer the following questions

Assignment

- | | |
|--|----|
| 1.a) What is a Router? Mention different types of routers with their operations. | 4 |
| b)What are the important properties of a bridge & router? | 6 |
| 2.What is collision? Discuss how CSMA/CD detects and handles collisions. | 10 |
| 3.a) What is meant by Ethernet? Mention its importance. | 4 |
| b)Mention some advantages & disadvantages of Ethernet with wireless connection. | 6 |
| 4.Discuss the OSI network model and explain the functions of each layer. | 10 |

BSc Program 3rd Semester Examination, 2021
Computer Science
SEC-1 : Office Automation Tools

Full marks: 40

Answer the following questions

Assignment

- | | |
|---|----|
| 1. a) What do you mean by Office Automation Tools? | 6 |
| b) What is Worksheets? | 4 |
| 2. What do you mean by Formatting Text, Pages, Lists & Tables in Word Processing? | 10 |
| 3. a) Define macros and Pivot Table. | 4 |
| b) How to create charts and graphs in Spreadsheets? Mention steps. | 6 |
| 4. Describe the features of Presentation Tools . | 10 |

Sukanta Mahavidyalaya
Department of Computer Science
Dhupguri, Jalpaiguri

Subject: Database Management System

Paper Code: GE 3B

Sem: 3rd (GE)

FM: 40

Answer all questions

- 1: What do you mean by data and information in DBMS? Write some differences among them. [2+2=4]
 2. What are the advantages of file processing system over DBMS? [3]
 3. Write two advantages of DBMS. [3]
 4. What is data model? Describe Hierarchical model and Network model in brief. [2+3=5]
 5. Define generalization, specialization and aggregation in EER model with suitable examples. [2X3=6]
 6. What is a functional dependency? Describe different anomalies in context with DBMS. [2+5=8]
 7. Demonstrate normal forms (1st, 2nd, 3rd and BCNF) with suitable example. [5]
- 7.** What do you mean by ACID property and concurrency control in DBMS?[5]

Sukanta Mahavidyalaya
Department of Computer Science
Dhupguri, Jalpaiguri

Subject: Internet Technologies

Paper Code: CC 51

Sem: 5th

FM: 40

Answer all questions

1. How to Synchronize Array List in Java? What is the time complexity of different Array List operations in terms of Big(O) notation? [3+4=7]
2. How to create object in Java? Write a Java program to find the frequency of each element in the array? [3+5=8]
3. What is JavaScript? [2]
4. What are JavaScript data types? List some features of JavaScript. [3+4=7]
5. Explain Hoisting in JavaScript. [3]
6. Explain “this” Keyword. What is NaN property in JavaScript? [3]
7. Explain call(), apply(), & bind() function method. [6]
8. List out the various branching statements in JavaScript? [4]

ASSIGNMENT BASED INTERNAL ASSESMENT 2021
CC 52 - 5th SEMESTER (CMSH)
THEORY OF COMPUTATION

1. What is the difference between DFA and NFA ? 5x8= 40
2. How we convert NFA TO DFA?
3. Write about pushdown automata with diagram.
4. Discuss about CFG.
5. Design a PDA for 0^n1^{2n} .
6. Define string, alphabet, symbol in theory of computation?
7. Construct DFA which accept set of all strings over $\{0,1\}$ where each strings start with "1 0".
8. What Is The Significance Of Pumping Lemma.

BSc Honours 5th Semester Examination, 2021
Computer Science
DSE53-E2: Information Security

Full marks:
40

Answer the following questions

5x8=40

1. Explain the need and principles of security.
2. Explain various substitution techniques.
3. Explain various transposition techniques.
4. Explain the need and types of firewall.
5. What is virtual private network?
6. Write about biometric authentication.
7. What is the difference between authentication, integrity, confidentiality and nonrepudiation?
8. Describe two types of cryptographic algorithms.

Sukanta Mahavidyalaya

Department of Computer Science

Dhupguri, Jalpaiguri

Subject: Numerical Methods

Paper Code: DSE 54 (E3)

Sem: 5th (Hons)

FM: 40

Answer all questions

1. What is interpolation & extrapolation, explain with suitable example. [4]
2. Derive Newton's backward interpolation formula [6]
3. Use Newton's Backward Interpolation method to compute $\sin 57^\circ$ using the following table. [5]

θ°	45 $^\circ$	50 $^\circ$	55 $^\circ$	60 $^\circ$
$\sin \theta$	0.7071	0.7660	0.8192	0.8660

4. Solve the linear system $Ax = b$ using gauss elimination method [5]

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 2 & 3 & 1 \\ 5 & 2 & 3 \end{bmatrix} \quad b = \begin{bmatrix} 1 \\ 2 \\ 0 \end{bmatrix}$$

5. Find the root of the following equations using Gauss – Jacobi method [5]

$$\begin{aligned} 5x + 2y + z &= 3 \\ 3x + y + 2z &= 7 \\ 6x - y + z &= 2 \end{aligned}$$

6. Using Bisection method to find the root of the equation [5]

$$f(x) = 3x + \sin x - e^x = 0$$

7. Use Regula – Falsi method to find root of the equation [5]

$$f(x) = x^3 - x - 1 = 0$$

8. Find the root of the following equations using Gauss – Seidel method [5]

$$\begin{aligned} 3x + y + 5z &= 2 \\ x + y + 3z &= 6 \\ x - 4y + 3z &= 9 \end{aligned}$$

BSc Program 5th Semester Examination, 2021
Computer Science
DSE1A: Operating Systems

Full marks:
40

Answer the following questions

1. What are the various services provided by Operating System? Explain in brief.

10

2. Compare the Linux and windows operating system.

10

3. Write short note on following:

- a) Time Sharing Systems
- b) Thread life cycle
- c) Multi processing
- d) Real Time systems

10

4. Write short note on following:

- a) Cache memory
- b) Dead lock
- c) CPU scheduling
- d) Physical and virtual address space

10

BSc Program 5th Semester Examination, 2021
Computer Science
SEC-3 : Visual Basic Programming

Full marks:40

Answer the following questions

Assignment

- | | |
|---|----|
| 1.a) Write a Visual Basic Program to create pascal diagram. | 6 |
| b) Write a Visual Basic Program to print first 15 fibonacci series. | 6 |
| 2. Write a Visual Basic Program to add two numbers. | 6 |
| 3.a) Write a Visual Basic Program to Sort 10 Integers. | 6 |
| b) Write a Visual Basic Program to create a stop watch. | 6 |
| 4. Design a Tic-Tac-Toe Game Using Visual Basic Program. | 10 |

ASSIGNMENT BASED INTERNAL ASSESMENT 2021
3rd SEMESTER(ECONOMICS SEC- 1)
BASIC COMPUTER APPLICATION

- 1.what do you understand by computer memory? Name its parts 5x8 =40
- 2.differentiate between RAM and ROM
- 3.Briefly explain the term herd disk
- 4.what is the use of CPU? Name its parts
- 5.what do you understand by editing in ms word? how you use a table in word processing software
- 6.how you create mail merge in ms word.
- 7.discuss about generations of computer
8. explain a block diagram of a computer with its parts