



SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE
Shri Vaishnav Institute of Information Technology
Department of Computer Science and Engineering

2022

MST I

Subject Code:- BTCS102N

Subject Name: Principles of C Language

Semester :- I

Section: All

Time: 1 Hour

Total Marks: 20

Note: All questions are compulsory. Assume suitable missing data

		Max Marks	CO
Q.1	a. What is algorithm? Explain its characteristics.	3	CO1
	b. Explain the following Object code, Source code and Executable code.	3	CO1
	c. What is flow chart? Explain different symbol used in flowchart with the help of example.	4	CO1
	or		
	b. Explain the Compilation process in detail.	4	CO1
Q. 2	a. Explain different built-in data types used in C with help of example.	3	CO2
	b. Write a program to find whether the given number is Even or Odd in C.	3	CO2
	c. Explain different types of Loops used in C with help of examples.	4	CO2
	or		
	d. Write a program to find whether the given number is Prime number or not in C.	4	CO2

SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE
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 Department of Computer Science and Engineering

2022

MST I

Subject Code: BTPH 101 Subject Name: Applied Physics

Semester: I

Time: 1 Hour

Total Marks: 20

N

		Marks	CO
Q.1 a.	What is matter wave? State four properties of matter wave.	3	CO1
b.	Derive Schrödinger time dependent wave equation.	3	CO1
c.	State Heisenberg's Uncertainty principle. Obtain an expression for uncertainty in position and uncertainty in momentum.	4	CO2
OR	Define group and phase velocity and derive their relationship.		
Q.2 a.	What are the differences between intrinsic and extrinsic semiconductor?	3	CO1
b.	How are N- and P- type of semiconductors prepared? Give two examples of impurities for both types of semiconductors.	3	CO1
c.	What is Zener breakdown? Explain the V-I characteristics of Zener diode.	4	CO2
OR	What is Compton effect? Find the expression for Compton shift.		

re compulsory. Assume suitable missing data

CO1	Student will be able to comprehend laws of physics.
CO2	Student will be able to apply laws of physics for various engineering applications.



SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE

Shri Vaishnav Institute of Technology and Science

Department of Computer Science Engineering

MST I/II
Section L/G

Subject Code:
BTMACS101

Subject Name:
Mathematics-I

Semester: I

Total Marks: 20

Time: 1 Hour

Note: All questions are compulsory. Assume suitable missing data

		Marks	Related CO
Q. 1	a) Verify the Rolle's theorem for $f(x) = \tan x$ in the interval $0 \leq x \leq \pi$	3	CO1
	b) Expand $\log x$ in power of $(x - 1)$ by Taylor's series	3	CO1
	c) If $u = e^{xyz}$, then show that $\frac{\partial^3 u}{\partial x \partial y \partial z} = (1 + 3xyz + x^2y^2z^2)e^{xyz}$	4	CO1
	OR		
	d) If $V = (x^2 + y^2 + z^2)^{-1/2}$, then prove that $\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2} + \frac{\partial^2 V}{\partial z^2} = 0$	4	CO1
Q. 2	a) Find the c of mean value theorem for the function $f(x) = x^3$ in the interval $[-2, 2]$	3	CO1
	b) Find the equation of the tangent plane and normal to the surface $z^2 = 4(1 + x^2 + y^2)$ at point $(2, 2, 6)$	3	CO1
	c) If $u = f(x, y)$ and $x = r \cos \theta$, $y = r \sin \theta$, then prove that $\left(\frac{\partial u}{\partial x}\right)^2 + \left(\frac{\partial u}{\partial y}\right)^2 = \left(\frac{\partial u}{\partial r}\right)^2 + \frac{1}{r^2} \left(\frac{\partial u}{\partial \theta}\right)^2$	4	CO1
	OR		
	d) If $x = r \cos \theta$, $y = r \sin \theta$, then prove that $\frac{\partial r}{\partial x} = \frac{\partial x}{\partial r}$ and $r \frac{\partial \theta}{\partial x} = \frac{1}{r} \frac{\partial x}{\partial \theta}$	4	CO1

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Shri Vaishnav Institute of Information Technology

Department of Computer Science and
Engineering

2022

22100 BTCS 011827

MST I

Subject Code: BTCS 102

Subject Name: ICSE

Semester: I

Time: 1 Hour

Total Marks: 20

Note: All questions are compulsory. Assume suitable missing data.

Question
No.

Marks Related CO

1 A) Explain the block diagram of computer. 1 3 CO1

B) Explain Application software and Utility software. 3 CO1

C) Short note on-

- i. Hardware and Software
- ii. ALU and Control Unit

4 CO1

OR

D) Explain the generation of language with their advantages. 4 CO1

2 A) What is operating system and Advantages of operating system. 3 CO2

B) Difference between multitasking and multi programming. 3 CO2

C) Explain type of operating system. 4 CO2

OR

D) Explain function of operating system. 4 CO2

CO1

To introduce the fundamentals concepts of Computer system

CO2

2. Understanding the basic concepts and features of various kinds of Operating systems

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2022

MST I

Subject Code: STCS103N Subject Name: Computer System Organization

Semester: I

Time: I Hour

Total Marks: 20

Note: All questions are compulsory. Assume suitable missing data

Question No.1

1a) Draw the block diagram of Von Newman architecture and mention various components of architecture

Marks Related CO

3 CO1

b) What is Instruction cycle? Explain with suitable diagram

3 CO2

c) The 8-bit register A, B, C initially have the following values A= 11110010,

B= 11111111, C= 10111001. Perform the following micro-operation A \leftarrow A+B,

B \leftarrow B+1, C \leftarrow A \wedge C, A \leftarrow A \wedge C

4 CO3

d) Discuss briefly about Micro-programmed control unit

4 CO2

2 a) List different types of Registers .Explain Program Counter, Accumulator and General Purpose registers.

3 CO1

b) Discuss about Micro Instruction formats.

3 CO2

c) List different types of addressing mode. Explain any three with examples. 4 CO2

OR

d) Explain Any two 1) Control Memory 2) Address Sequencing 3) Micro program sequencer

4 CO3

CO1

I understand the importance of

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 Department of Computer Science and Engineering

2022
 22100 BTCSE 11827

MST-I

Subject Code: BTEC104

Subject Name: DLCD

Semester: I

Time: 1 hour

Section: CS-L / CS-N / IT - A

Total Marks: 20

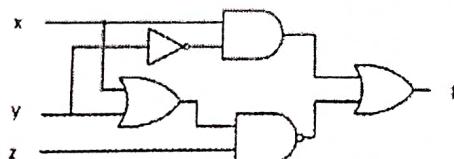
Note: (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 4 marks.

(2) From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.

Q. No.

Q.1 (a)	Solve using K-map $F(A,B,C) = \sum(1,2,3,5)$	Marks 3	Related CO CO2
(b)	Prove the following identities i) $A+AB = A$ ii) $A+A'B = A+B$	3	CO2
(c)	Convert the following into Canonical form $F = AB + BC$ $F = (A+C)(A+B')$	4	CO2
OR			
(d)	Minimize the expression and realize the minimized expression using logic gates $F = A + A'B + BC$	4	CO2

Q.2 (a)	State and verify the De-Morgan's theorem with truth table.	3	CO2
(b)	Implement the given function using NAND gates only $F(A, B, C) = \bar{A}B + AC + B\bar{C}$	3	CO1
(c)	Find the output function (F) from the given logic circuit and then simplify.	4	CO1



OR

Simplify the given Boolean functions-

i.	$F(A, B, C) = \bar{A}(B + C) + \bar{B}\bar{C} + C(A + B\bar{C})$		
(d) ii.	$F(X, Y, Z) = (X + \bar{Y})(Y + Z) + XZ$	4	CO1

CO1

Design an optimal digital logic circuit to meet the given specifications.

CO2

Evaluate the performance of the given digital logic circuit based on specific criteria for reliable system implementation.