COMPUTER SCIENCE SSC–II (2nd Set)
SECTION – A (Marks 12)
Time allowed: 15 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

Q.1 Fill the relevant bubble for each part. Each part carries one mark.

(1) Which symbol is used to obtain the total marks from the values given by users, in the flow chart development?
   A. Rectangle ◯   B. Parallelogram ◯
   C. Diamond ◯   D. Oval ◯

(2) Which one of the following problem-solving stage refers to dividing the solution into steps and arranging in order to solve the problem?
   A. Planning ◯   B. Analyzing ◯
   C. Defining ◯   D. Selecting ◯

(3) Which of the software examines the values stored in variables and help in finding and removing the errors?
   A. Loader ◯   B. Linker ◯
   C. Editor ◯   D. Debugger ◯

(4) What is the range of numbers that can be stored in a variable of type float?
   A $10^{-38} - 10^{38}$ ◯   B. $10^{-308} - 10^{308}$ ◯
   C. $10^{38} - 10^{38}$ ◯   D. $10^{-38} - 10^{32}$ ◯

(5) Which symbol with the variable, refers to the memory location in scanf() function:
   A. # ◯   B. $ ◯
   C. % ◯   D. & ◯

(6) What is the value of **"z"** after evaluating the given expression where a = 5, b = 3?
   z = b / 2 + b * 4 / b && b < a + a / 3
   A. 5 ◯   B. 0 ◯
   C. 1 ◯   D. 6 ◯

(7) What is the value of "z" after evaluating the given expression where x=10, y=3?
   z = 4*++x ||--y<x%2&&x+y
   A. 41 ◯   B. 0 ◯
   C. 1 ◯   D. 40 ◯

(8) What is the output of the following codes where a=1 and b= 5?
```
if (a-b<6)
        printf("%d", a);
    else
        printf("%d", b);
printf("%d", a+b);
```
A.	1	○	B.	5	○
C.	15	○	D.	16	○

(9) Which one of the following is a valid statement for "For loop"?

A.	for(;;)	○	B.	for(int I =1; ;)	○
C.	for(; ;k++)	○	D.	All of these	○

(10) Which logic gate is represented by the function = $(\overline{xy})$?

A.	NAND	○	B.	NOR	○
C.	Exclusive-OR	○	D.	Exclusive-NOR	○

(11) A computer that makes the web pages available through the internet is called:

A.	website	○	B.	web-server	○
C.	web-browser	○	D.	web-link	○

(12) Which part of the web address tell the server type of file is being requested?

A.	www	○	B.	http://	○
C.	.html	○	D.	URL	○

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Time allowed: 2.45 hours   Total Marks: 43

Note: Answer any nine parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 27)

Q.2   Attempt any **NINE** parts from the following. All parts carry equal marks. $(9 \times 3 = 27)$

i.   What are the features to select the best solution of a problem?   (1+1+1)

ii.   Write an algorithm to find the sum, product and average of five given numbers?   (1+1+1)

iii.   Briefly describe the three fundamental element of structured programming in C language?   (1+1+1)

iv.   What happens if header-files were not used in C program? List at-least two header-files with their purpose   (1+2)

v.   Compare printf() and puts() function with at-least one example.   (3)

vi.   Write at-least three differences between format specifiers and escape sequence characters.   (3)

vii.   Draw precedence table of operators used in the following expression: (3)
        z = !(4*++x-y || x==y/--y<x%2&&x++ +y)

viii.   Differentiate between if-else-if and switch structure.   (3)

ix.   Write a code that prints the given sequence of numbers on a single line also print its sum by using any loop.   (2+1)
        30 27 24 21 18 15 12 9 6 3 0 -3 -6 -9

x.   Write the output of **each gate** shown in the following figure: (3)
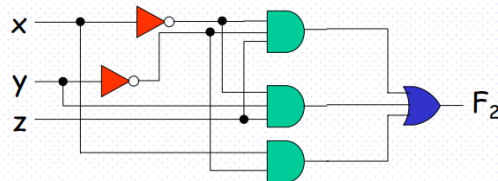
xi.   Differentiate between ordered list and unordered list used in HTML.   (3)

xii.   Define the following terms: (1+1+1)
        a.   Web-Hosting   b.   Web-Server   c.   Hyper-Link

xiii.   Differentiate between Frame and Frame set by giving one example used in HTML.   (3)

SECTION – C (Marks 16)

Note: Attempt any **TWO** questions. $(8 \times 2 = 16)$

Q.3   Write a C program to input electricity unit charge and calculate the total electricity bill according to the given condition: (5+3)
        For first 50 units Rs. 0.50/unit
        For next 100 units Rs. 0.75/unit

For next 100 units Rs. 1.20/unit
 For unit above 250 Rs. 1.50/unit
 An additional surcharge of 20% is added to the bill.
Also justify your selection of conditional control structure.

Q.4   Write a program that read a number and prints its power (take it from user) if it is a prime number otherwise print its factorial by using any control structure.   (8)

Q.5   a.   Briefly describe NOR and Exclusive NOR(XNOR) logic gate with circuit diagram and truth table.   (4)
           b.   Define Karnaugh Map(K-Map) also write the simplification rules for three variable Karnaugh Map.   (4)

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Sr No	Section: Q. No. (Part no.)	Contents and Scope	Student Learning Outcomes	Cognitive Level **	Allocated Marks in Model Paper
1	A: 1(i)	1.3 Flow Chart	(iv) Use of flow chart symbols	U	1
2	A:1(ii)	1.1 Understanding the Problem	iii) Plan the solution of problem	K	1
3	A: 1(iii)	2.2 Programming Environment	ii) Explain the following modules of the C programming environment • Debugger	K	1
4	A: 1(iv)	2.4 Constants and Variables	iii) Know the following data types offered by C and the number of bytes taken by each data type • Floating point – float	K	1
5	A: 1(v)	3.1 Input / Output functions	ii) Use input functions like: • scanf ( )	K	1
6	A: 1(vi)	3.2 Operators	ii) Use the following arithmetic operators: • Addition (+) • Subtraction (-) • Multiplication (*) • Division (/) • Remainder (%) iii) Use the following assignment operators: • Assignment operator (=) • Compound assignment operator (+ =, -, =, * =, / =, % =) • Increment operator (++) - Prefix - Postfix • Decrement operator (--) - Prefix – Postfix v) Use the following relational operators: • Less than ( ) • Less than or equal to (<=) • Greater than or equal to (>=) • Equal to (= =) • Not equal to (! =) vii) Use of the following logical operators: • AND (&&) • OR (‖) • NOT (!)	U	1
7	A: 1(vii)	3.2 Operators	ii) Use the following arithmetic operators: • Addition (+) • Subtraction (-) • Multiplication (*) • Division (/)	U	1

			• Remainder (%) iii) Use the following assignment operators: • Assignment operator (=) • Compound assignment operator (+ =, -, =, * =, / =, % =) • Increment operator (++) - Prefix - Postfix • Decrement operator (--) - Prefix – Postfix v) Use the following relational operators: • Less than ( ) • Less than or equal to (<=) • Greater than or equal to (>=) • Equal to (= =) • Not equal to (! =) vii) Use of the following logical operators: • AND (&&) • OR (‖) • NOT (!)		
8	A: 1(viii)	4.1 Control Structure	vi) Use if-else statement	U	1
9	A: 1(ix)	5.1 Loop Structure	• ii) Know that for loop structure is composed of: • For • Initialization expression • Test expression • Body of the loop • Increment / decrement expression	U	1
10	A: 1(x)	6.2 Logic Gates	iv) Explain the following logic gates with the help of truth tables: NOR	U	1
11	A: 1(xi)	7.1Introduction	i) Define the following terms: Web Server	K	1
12	A: 1(xii)	7.1 Introduction	i) Define the following terms: • Uniform Resource Locator (URL)	U	1
13	B: 2(i)	1.1 Understanding the Problem	v) Select the best solution on the basis of: • Speed • Cost • Complexity	K	1+1+1
14	B: 2(ii)	1.2 Algorithm	iv) Write algorithms for solving the following problems: - • To find the sum, product and average of five given numbers	U	1+1+1
15	B: 2(iii)	2.1 Introduction	ii) Explain the following levels of programming languages • Structured language	K	1+1+1
16	B: 2(iv)	2.3 Programming Basics	i) Define header files	U	1+2
17	B: 2(v)	3.1 Input / Output functions	i) Use output functions like: • printf ( )	U	3
18	B: 2(vi)	3.1 Input / Output functions	iv) Define Format specifiers v) Define an escape sequence	U	3

19	B: 2(vii)	3.2 Operators	xi) Define and explain the order of precedence of operators	U	1+2
20	B: 2(viii)	4.1 Control Structure	x) Differentiate among all selection structures	U	3
21	B: 2(ix)	5.1 Loop Structure	viii) Write codes for flowcharts discussed in unit-1	A	2+1
22	B: 2(x)	6.2 Logic Gates	iii) Explain a truth table.	K	3
23	B: 2(xi)	7.4 Creating Lists	iii) Differentiate between ordered list and unordered list	U	1+1+1
24	B: 2(xii)	7.1 Introduction	i) Define the following terms: Web Server • Web Hosting	K	1+2
25	B: 2(xiii)	7.8 Creating Frames	ii) Differentiate between a frame and a frameset	U	3
26	C: 3	4.1 Control Structure	ix) Use nested selection structures	A+U	5+3
27	C: 4	5.1 Loop Structure	viii) Write codes for flowcharts discussed in unit-1	A	8
28	C: 5	a. 6.2 Logic Gates b. 6.3 Simplification using K Maps	iv) Explain the following logic gates with the help of truth tables: • NOR • Exclusive NOR (XNOR) iii) Simplify three variable Boolean function/expression	K	4+4

**Cognitive Level
K: Knowledge   U: Understanding   A: Application

COMPUTER SCIENCE SSC-II (2ⁿᵈ Set)

Table of Specification

Assessment Objectives		UNIT 1 PROGRAMMING TECHNIQUES 10%	Unit 2: ROGRAMMING IN C 10%	Unit 3: INPUT / OUTPUT HANDLINGC++ 15%	Unit 4: CONTROL STRUCTURE 15%	Unit 5: LOOP STRUCTURE 15%	Unit 6: COMPUTER LOGIC AND GATES15%	Unit 7: WORLD WIDE WEB AND HTML 20%	Cognitive level Marks	Cognitive level Total marks: 75	Cognitive level %
Knowledge	Section A	1-ii-(01)	1-iii-(01) 1-iv-(01)	1-v-(01)				1-xi-(01)	05	22	29.3%
	Section B	2-i-(03)	2-iii-(03)					2-xii-(03)	09		
	Section C						5(08)		08		
Understanding	Section A	1-i-(01)		1-vi-(01) 1-vii-(01)	1-viii-(01)	1-ix-(01)	1-x-(01)	1-xii-(01)	07	37	49.3%
	Section B	2-ii-(03)	2-iv-(03)	2-v-(03) 2-vi-(03) 2-vii-(03)	3(03) 2-viii-(03)		2-x-(03)	2-xiii-(03) 2-xi-(03)	30		
	Section C								-		
Application	Section A								-	16	21.3%
	Section B					2-ix-(03)			-		
	Section C			3(05)	4(08)				16		
Total marks		8	8	12	12	12	12	11	75		100%

KEY: 1-i-(01)   Q. No - Part No - (Allocated Marks)

Note: (i) The policy of FBISE for knowledge based questions, understanding based questions and application based questions is approximately 30% knowledge based, 50% understanding based, 20% application based.

(ii) The total marks specified for each unit/content in the table of specification is only related to this model question paper.

(iii) The level of difficulty of the paper is approximately 40% easy, 40% moderate, 20% difficult