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ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESHWARAM, BANGALORE – 560 003

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S.S.L.C. EXAMINATION, JUNE / JULY, 2022

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 02. 07. 2022] ಸಂಕೇತ ಸಂಖ್ಯೆ : **74**

Date : 02. 07. 2022] **CODE NO. : 74**

ವಿಷಯ : ಎಲಿಮೆಂಟ್ಸ್ ಆಫ್ ಕಂಪ್ಯೂಟರ್ ಸೈನ್ಸ್

Subject : ELEMENTS OF COMPUTER SCIENCE

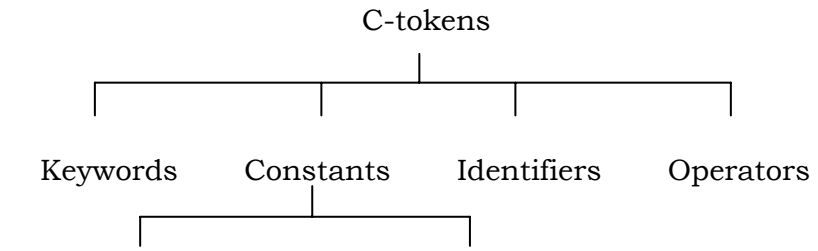
(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ/ Regular Repeater)

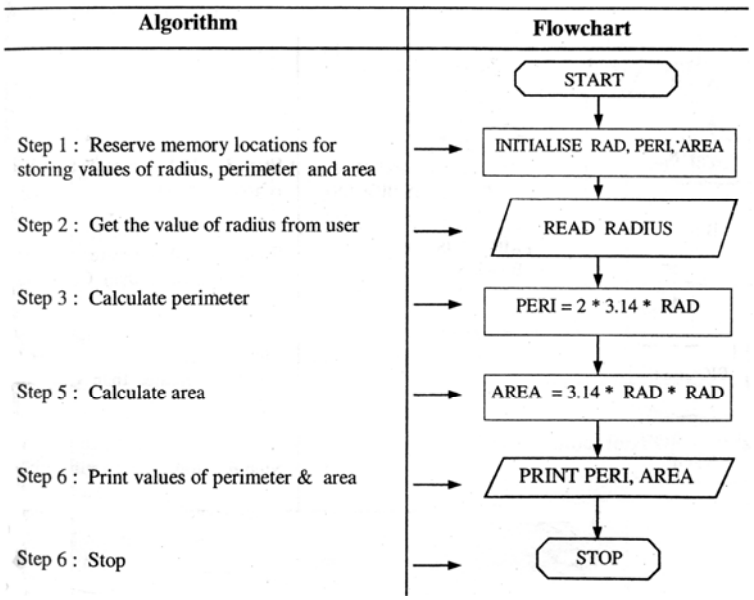
[ಗರಿಷ್ಠ ಅಂಕಗಳು : **90**

[Max. Marks : 90

Qn. Nos.	Sub. Qn.No.	Value Points	Total
1.	i)	PAYROLL is an example of (A) application software (B) system software (C) package software (D) utility software. *Ans.* (A) application software	1
	ii)	The software which acts as interface between the user and the system is (A) loader (B) keyboard (C) operating system (D) mouse. *Ans.* (C) operating system	1
	iii)	An identifier used to identify a statement is (A) constant (B) label (C) variable (D) delimiters. *Ans.* (B) label	1

Qn. Nos.	Sub. Qn.No.	Value Points	Total
	iv)	The size of float data type is (A) 3 bytes (B) 2 bytes (C) 5 bytes (D) 4 bytes. *Ans.* (D) 4 bytes	1
	v)	The escape sequence character set for vertical tab is (A) \v (B) \t (C) \f (D) \a *Ans.* (A) \v	1
	vi)	A name having a few letters, numbers and special character (underscore) is called (A) keywords (B) identifiers (C) reserved keywords (D) C-tokens. *Ans.* (B) identifiers	1
	vii)	Which of the following operators has the highest precedence ? (A) * (B) = = (C) = > (D) + *Ans.* (D) +	1
	viii)	The operator & is used for (A) logical AND (B) bitwise OR (C) bitwise AND (D) logical OR. *Ans.* (C) bitewise AND	1
	ix)	The integer conversion character is (A) f (B) d (C) I (D) C *Ans.* (B) d	1
	x)	The unformatted output function in a computer programming is (A) getchar ( ) (B) scanf ( ) (C) printf ( ) (D) putchar ( ) *Ans.* (D) putchar ( )	1

Qn. Nos.	Sub. Qn.No.	Value Points	Total
2.	a)	Identify whether the given variable names are valid or not. i) Compound interest ii) Total. *Ans.* i) Not valid 1 ii) Valid 1	2
	b)	Explain C character set. 3 *Ans.* C language has a fixed set of characters. These characters must be used as per the grammar of the language. This rule of grammar is known as syntax. 2 There are two sets of characters in C language. They are i) Source characters ii) Execution characters 1	3
	c)	Write the classification of C-tokens. 5 *Ans.* C tokens are classified as follows :  3 Numeric constants — Integers — Real numbers Character constants — Single character constants — String constants 2	5
3.	a)	Which are the different data types in C ? 2 *Ans.* i) integer *e.g.* int num; ii) floating point number *e.g.* float avg; iii) single character variable *e.g.* char result; iv) string variables *e.g.* charname [20]; $4 \times \frac{1}{2}$	2
	b)	Explain comments. 3 *Ans.* Comments are the statements which do not have any effect on the execution of the program as the compiler ignores them. But the use of comments increases the readability of the program and helps in documentation. Comments are closed between /* and */	3

Qn. Nos.	Sub. Qn.No.	Value Points	Total
	c)	Differentiate between input statement and output statement. 5 *Ans.* Input statement : These statements allow the user to store values in the computer memory. These values are stored in memory locations (variables), which are previously declared. *e.g.* scanf ("%d", & salary); Output statement : These statements give out the values from computer memory onto the monitor or paper. Output statements can also write values onto secondary storage. *e.g.* printf (%d", salary); $2\frac{1}{2} + 2\frac{1}{2}$	5
4.	a)	What are binary operators ? 2 *Ans.* Binary operators are those which require two operands. The binary operators include arithmetic and logical operators.	2
	b)	Explain postfix operators. 3 *Ans.* Here the variable is incremented first and then its value is assigned for processing. For example, in the following program statement, i = 5; k = 10; i = ++k ;	3
	c)	Write a flowchart to find area and perimeter of a circle. 5 *Ans.*  	5

Qn. Nos.	Sub. Qn.No.	Value Points	Total
5.	a)	Define hierarchy of operations. 2 *Ans.* Hierarchy of operation refers to the priority of operation in a long arithmetic expression. Associability refers to whether the operation is done from left to right or from right to left when many operators are present in the expression. The operations which have a higher priority are executed first and then the operations which have lower priority executed.	2

	b)	Write a C program to find whether given number is even or odd. 8
		Ans.
		`/* Program to find whether a number is even or odd */`
		`#include<stdio.h>`
		`main()`
		`{`
		`int x;`
		`clrscr();`
		`printf("\n Enter a number :");`
		`scanf("%d",&x);`
		`(x % 2 == 0) ? printf("\n %d is even",x):printf("\n %d is odd",x);`
		`}`
		Output
		Enter a number :17
		17 is odd
		Enter a number :40
		40 is even
			8

		OR	
	a)	Write the advantages of shorthand assignment operators. 2 *Ans.* i) The variable on the left hand side need not be written again on the right hand side ii) The statement is short and easier to read iii) It is efficient. 2 × 1	2

	b)	Write a C program to compute area of a circle. 8
		Ans.
		`/* Program to compute area of circle */`
		`#include <stdio.h>`
		`main ( )`
		`/* Declarations */`
		`float pi, r, area ;`
		`/ *assignments */`
		`Pi = 3·14159 ;`
		`r = s`
		`/* Calculations and printing */`
		`area = Pi * r * r`
		`printf ( "\n area of circle = %f" , area );`
		`return;`
		`}`
			8

Qn. Nos.	Sub. Qn.No.	Value Points	Total
6.	a)	List the bitwise operators provided by C. 2 *Ans.* The bitwise operators provided by C are i) & AND ii) | OR iii) ~ NOT iv) ^ Exclusive OR v) >> Right shift vi) << Left shift	2

	b)	Write a C program to calculate sum and average of two numbers. 8
		Ans.
		`/* Program to calculate sum and average of 2 numbers */`
		`main()`
		`{`
		`/* Initializing variables */`
		`int a,b,sum;`
		`float avg;`
		`clrscr();`
		`printf("input first number .....");`
		`scanf("%d", &a);`
		`printf("input second number ....");`
		`scanf("%d",&b);`
		`sum=a+b;`
		`avg=(a+b)/2.0;`
		`printf("\nThe sum is %d",sum);`
		`printf("\nThe average is %5.2f",avg);`
		`printf("\nPress any key to continue.....");`
		`getch();`
		`}`
			8

7.	a)	Explain relational operators. 2 *Ans.* Relational operators are used to test the relation between two operands. They are binary operators as they require two operands. All relational operations will result in either true or false. The various relational operators are i) < less than ii) > greater than iii) == is equal to iv) >= greater than or equal to v) <= less than or equal to vi) != not equal to	2

Qn. Nos.	Sub. Qn.No.	Value Points	Total
	b)	Write a C program to calculate simple interest. 8 *Ans.* **/*Program to calculate simple interest*/** **#include<stdio.h>** **main()** **{** **int year;** **float prin,rate,si;** **printf("\nEnter principle,rate and period:")** **scanf("%f %f %d",&prin,&rate,&year);** **si=prin*rate*year/100;** **printf("\nSimple Interest=%f",si);** **return;** **}** **Output** **Enter principle,rate and period :1000 5 2** **Simple Interest = 100.000000**	8
8.	a)	Convert the following mathematical expressions into C expressions : 2 i) root = $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ ii) $(a+b)(a-b)$. *Ans.* i) root = $(-b + \text{sqrt}\ (b*b - 4*a*c\ ))/(2*a)$ ii) $(a+b)*(a(-b)$ 2×1	2

	b)	Write a C program to evaluate the expression $S = \frac{a+b}{c+d}$. 8
		Ans.
		main()
		{
		int a,b,c,d, s;
		printf("\n Enter the values of a, b, c, d");
		scanf("%d %d %d %d", &a,&b,&c,&d);
		s = (a+b)/(c+d);
		printf("\nThe result is %d",s);
		getch();
		}
			8

Qn. Nos.	Sub. Qn.No.	Value Points	Total
9.	a)	What will be the value of the following expressions when A = 3, B = 5 and C = 2 ? 2 i) $S = ((A + (B - C) * B / A) - A * C$ ii) $S = B / A$. *Ans.* i) s = 2 ii) s = 5/3 = 1 (integer division) 2×1	2

	b)	Write a C program to find circumference of a circle. 8
		Ans.
		`/*Program to find circumference of a circle*/`
		`#include<stdio.h>`
		`main()`
		`{`
		`/*Declaration and assignment*/`
		`float pi=3.14159,radius=10,circum;`
		`circum=2*pi*radius;`
		`printf("\nCircumference=%f",circum);`
		`return;`
		`}`
		`Output`
		`Circumference=62.831802`
			8

		OR	
	a)	Convert the following mathematical expressions into C expressions : 2 i) $ab + cd$ ii) $\frac{2x^2 + 3x - 1}{10}$. *Ans.* i) $a * b + c * d$ ii) $(2 * x * x + 3 * x - 1)/10$ 2×1	2

	b)	Write a C program to find largest of two numbers. 8
		Ans.
		/* Program to find largest of 2 numbers */
		#include <stdio.h>
		main ( )
		{
		int n, m, big ;
		clrscr ( );
		printf ("\n enter two integer numbers :");
		scanf ("%d%d", &n, m);
		big = (n > m) ? n : m ;
		printf ("\n largest of %d and %d is : %d", n, m, big);
		}
			8