B.C.A.(First Semester) Examination, February/March-2022 BCA-102(N)

Programming Principle & Algorithm

(B.P. Students)

Time: 1:30 Hours Maximum Marks-100

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

- निर्देश: 1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही— सही भरें, अन्यथा मृल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
 - 2. इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमें से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने है। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET)में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वांइट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा निर्धारित प्रश्नों से अधिक प्रश्नों के उत्तर दिये जाते हैं तो उसके द्वारा हल किये गये प्रथमतः यथा निर्दिष्ट प्रश्नोत्तरों का ही मूल्यांकन किया जायेगा।
 - 3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
 - 4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक (O.M.R. ANSWER SHEET) पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
 - 5. ओ॰एम॰आर॰ उत्तर पत्रक (O.M.R. ANSWER SHEET) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
 - 6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी प्रश्नपुस्तिका बुकलेट एवं ओ०एम०आर० शीट पृथक-पृथक उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
 - 7. निगेटिव मार्किंग नहीं है।
- महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जॉच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।

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1.	C is	type of programming language?
	(A)	Object Oriented
	(B)	Procedural
	(C)	Bit level language
	(D)	Functional
2.	A C	program is a combination of?
	(A)	Statements
	(B)	Functions
	(C)	Variables
	(D)	All of the above
3.	Is th	e following statement a declaration or definition?
	exte	rn inti ;
	(A)	Declaration
	(B)	Definition
	(C)	Function
	(D)	Error
4. Identify which of the following are declarations		tify which of the following are declarations
	1;	Extern int x;
	2;	Float square (float x) $\{\}$
	3;	Double pow (double, double);
	(A)	1
	(B)	2
	(C)	1 and 3
	(D)	3

5. What will be the output of the program?

#include<stdio.h>

intmain()

int
$$x = 12$$
, $y = 7$, z ;

$$z=x!=4||y|==2;$$

printf("
$$z=\%d\n$$
",z);

return 0;

- (A) z=0
- (B) z=1
- (C) z=4
- (D) z=2
- 6. An Identifier may contain?
 - (A) Letters a-z, A-Z in Basic character set.
 - (B) Underscore symbol
 - (C) Numbers 0 to 9
 - (D) All the above
- 7. Find an integer constant.
 - (A) 3.145
 - (B) 34
 - (C) "125"
 - (D) None of the above
- 8. In which header file is the NULL macro defined?
 - (A) math.h
 - (B) conio.h
 - (C) stdio.h and stddef.h
 - (D) stdlib.h

9.	What are the different types of real data type in C?	
	(A) float, double	
	(B) short int, double, long int	
	(C) float, double, long double	
	(D) double, long int, float	
10.	Which statement will you add in the following program to work it correctly?	
	#include <stdio.h></stdio.h>	
	intmain()	
	{	
	printf("%f\n", log(36.0));	
	return 0;	
	}	
	(A) #include <stddef.h></stddef.h>	
	(B) # include <math.h></math.h>	
	(C) #include <stdlib.h></stdlib.h>	
	(D) #include <dos.h></dos.h>	
11.	Number of Keywords present in C Language are	
	(A) 32	
	(B) 34	
	(C) 62	
	(D) 64	
12.	Loops in C Language are implemented using?	
	(A) While Block	
	(B) For Block	
	(C) Do While Block	
	(D) All the above	

13. Which of the following statements are correct about the function?

```
long fun(intnum)
{
inti;
long f=1;
for(i=1;i<=num;i++)
f=f* i;
return f;
}</pre>
```

- (A) The function calculates the value of 1 raised to power num.
- (B) The function calculates the square root of an integer
- (C) The functions calculates the factorial value of an integer
- (D) None of above.
- 14. Each statement in a C program should end with
 - (A) Semicolon (;)
 - (B) Colon (:)
 - (C) Dot symbol (.)
 - (D) None of the above.
- 15. Two main measures for the efficiency of an algorithm are
 - (A) Processor and memory
 - (B) Complexity and capacity
 - (C) Time and space
 - (D) Data and space

16. The time factor when determining the efficiency of algorithm is measured by (A) Counting microseconds (B) Counting the number of key operations (C) Counting the number of statements (D) Counting the kilobytes of algorithm 17. Which of the following case does not exist in complexity theory (A) Best case (B) Worst case (C) Average case (D) Null case 18. The Worst case occur in linear search algorithm when (A) Item is somewhere in the middle of the array (B) Item is not in the array at all (C) Item is the last element in the array (D) Item is the last element in the array or is not there at all 19. The complexity of the average case of an algorithm is (A) Much more complicated to analyze than that of worst case (B) Much more simpler to analyze than that of worst case (C) Sometimes more complicated and some other times simpler than that of worst case (D) None of above 20. A pointer value refer to (A) An integer constant (B) A float value

(C) Any valid address in memory

(D) Any ordinary variable

- 21. How does compiler differentiate indirection operator from multiplication operator?
 - (A) By using the number of operands
 - (B) By seeing the position of operand
 - (C) Both options (A) and (B)
 - (D) By using the value of the operand
- 22. Which of the statement is correct about the program?

```
#include<stdio.h>
intmain()
{ inti =10;
int *j=&i;
return 0;
}
```

- (A) j and i are pointers to an int
- (B) i is a pointer to an int and stores address of j
- (C) j is a pointer to an int and stores address of i
- (D) j is a pointer to a pointer to an int and stores address of i
- 23. Which of the following is true about pointers?
 - 1. Pointers do not require memory storage.
 - 2. The size of a pointer depends on the type of the variable it points to.
 - (A) Option 1 only
 - (B) Option 2 only
 - (C) Option 1 and 2
 - (D) Neither option 1 nor 2

24.	Pointer is used for	
	(A)	Static memory allocation
	(B)	Dynamic memory allocation
	(C)	Both options (A) and (B)
	(D)	A positive integer
25. Types of Integer are		es of Integer are
	(A)	Short
	(B)	Int
	(C)	Long
	(D)	All of the above
26.	Whe	en applied to a variable, what does the unary "&" operator yield?
	(A)	The variable's values
	(B)	The variable's address
	(C)	The variable's format
	(D)	The variable's right value.
27.	What is required in each C program?	
	(A)	The program must have at least one function.
	(B)	The program does not require any function.
	(C)	Input data
	(D)	Output data

28. What is the result after execution of the following code if a is 10, b is 5, and c is 10?

$$a=a+1;$$

else

$$c = c + 1$$
;

- (A) a = 10, c = 10
- (B) a = 11, c = 10
- (C) a = 10, c = 11
- (D) a = 11, c = 11

29. Which one of the following is a loop construct that will always be executed once?

- (A) For
- (B) While
- (C) Switch
- (D) Do while

30. C Language developed at

- (A) AT & T's Bell Laboratories of USA in 1972
- (B) AT &T's Bell Laboratories of USA in 1970
- (C) Sun Microsystems in 1973
- (D) Cambridge University in 1972

31. C was primarily developed as

- (A) System programming language
- (B) General purpose language
- (C) Data processing language
- (D) None of the above

32. What is the output of the following program? #include<stdio.h> void main() { int x = 1; switch(x){ default:printf("Hello"); case 1 :printf("Hi"); break; case 2: print f ("HelloHi"); break; } } (A) Hello (B) Hi (C) HelloHi (D) Compile error 33. Which of the following special symbol allowed in a variable name? (A) * (asterisk) (B) | (pipeline) (C) - (hyphen) (D) (underscore) Whenever a C program is executed, execution starts from 34. (A) scanf function (B) void function (C) Any function (D) main function Keywords cannot be used as_____ 35. (A) Variables (B) Variables or constant names (C) Constant names (D) None of the above

36.	When one loop is constructed within another loop it is called a
	(A) For loop
	(B) Do loop
	(C) Do- while loop
	(D) Nested loop
37.	The first character of the variable name
	(A) May be a number
	(B) Must be an alphabet
	(C) Must be an underscore
	(D) Must be an alphabet or underscore
38.	In which header file are the library functions used for I/O purpose kept?
	(A) stdio.h
	(B) math.h
	(C) stdio.h or math.h
	(D) none of these
39.	Which of the following are correctly formed #define statements in C?
	(A) #define CUBE (X) (X*X*X);
	(B) #define CUBE(x) $(X*X*X)$
	(C) #define CUBE(X)(X*X*X)
	(D) #define CUBE(X) $\{X*X*X\}$

40. What will be the output of the program?

```
intmain() {
  inta[5] = {5, 1, 15, 50, 25};
  inti, j, m;
  i = ++a[1];
  j = a[1]++;
  m = a[i++];
  printf("%d, %d, %d", i, j, m);
  return 0;
  }
```

- (A) 2, 1, 15
- (B) 1, 2, 5
- (C) 3, 2, 15
- (D) 2, 3, 20
- 41. Which of the following statements are correct about 6 used in the program?

```
intnum[6];
num[6]=21;
```

- (A) In the first statement 6 specifies a particular element, whereas in the second statement it specifies a type.
- (B) In the first statement 6 specifies a array size, whereas in the second statement it specifies a particular element of array.
- (C) In the first statement 6 specifies a particular element, whereas in the second statement it specifies a array size.
- (D) In both the statement 6 specifies array size.
- 42. Which of the following cannot be checked in a switch case statement?
 - (A) Character
 - (B) Integer
 - (C) Float
 - (D) None of the Above

43. Choose a C Conditional Operator from the list. (A) ?: (B) :? (C) :<(D) <: 44. What is the other name for C Language?: Questions Mark Colon Operator.? (A) Comparison Operator (B) If-Else Operator (C) Binary Operator (D) Ternary Operator 45. Choose facts about continue statement in C Language. (A) Continue; is used to take the execution control to next iteration or sequence (B) Continue; statement causes the statements below it to skip for execution (C) Continue; is usually accompanied by IF statement. (D) All the above. 46. Choose a correct statement about C language break statement. (A) A single break; statement can force execution control to come out of only one loop. (B) A single break; statement can force execution control to come out of a maximum of two nested loops. (C) A single break; statement can force execution control to come out of a maximum of three nested loops. (D) None of the above. What is ASCII character ranges of C programming language? 47. (A) A to Z = 65 to 91 (B) a to z = 97 to 122 (C) o to 9 = 48 to 57(D) All the above

- 48. Expand or Abbreviate ASCII with regard to C Language.
 - (A) Australian Standard Code for Information Interchange
 - (B) American Standard Code for Information Interchange
 - (C) American Symbolic Code for Information Interchange
 - (D) Australian Symbolic Code for Information Interchange
- 49. Choose a right C Statement.
 - (A) Loops or Repetition block executes a group of statements repeatedly.
 - (B) Loop is usually executed as long as a condition is met.
 - (C) Loops usually take advantage of Loop Counter
 - (D) All the above.
- 50. Choose a correct C Statement.
 - (A) a++ is (a=a+1) POST INCREMENT Operator
 - (B) a--is (a=a-1) POST DECREMENT Operator
 --a is (a=a-1) PRE DECREMENT Operator
 - (C) ++a is (a=a+1) PRE INCRMENT Operator
 - (D) All the above.
- 51. What is the way to suddenly come out of or Quit any Loop in C Language.?
 - (A) continue; statement
 - (B) break; statement
 - (C) leave; statement
 - (D) quit; statement
- 52. C programs are converted into machine language with the help of
 - (A) An editor
 - (B) A compiler
 - (C) An operating system
 - (D) None of the above

- 53. A C variable cannot start with
 - (A) An alphabet
 - (B) A number
 - (C) A special symbol other than underscore
 - (D) Both (B) and (C)
- 54. What is the right way to access value of structure variable book {price, page}?
 - (A) printf("%d%d", book.price, book.page);
 - (B) printf("%d%d", price.book, page.book);
 - (C) printf("%d%d", price::book, page::book);
 - (D) printf("%d%d", price-> book, page->book);
- 55. What is C Tokens?
 - (A) The smallest individual units of c program
 - (B) The basic element recognized by the compiler
 - (C) The largest individual units of program
 - (D) (A)&(B) both
- 56. What is Keywords?
 - (A) Keywords have some predefine meanings and these meanings can be changed.
 - (B) Keywords have some unknown meanings and these meanings cannot be changed.
 - (C) Keywords have some predefined meanings and these meanings cannot be changed.
 - (D) None of the above
- 57. Which one of the following sentences is true?
 - (A) The body of a while loop is executed at least once.
 - (B) The body of a do... while loop is executed at least once.
 - (C) The body of a do... while loop is executed zero or more times.
 - (D) A for loop can never be used in place of a while loop.

58.	What are Nibble, Word and Byte in computer language.?
	(A) Byte = 8 bits, Word= 4 Bytes, Nibble = 8 Bytes
	(B) Byte = 8 bits, Word=2 Bytes, Nibble = 4 Bytes
	(C) Byte = 8bits, Word= 12 bits, Nibble=32 Bits
	(D) Byte = 8 bits, Word= 24 bits, Nibble= 40 Bits
59.	What is the operator used to make 1's One's compliment?
	(A) & Bitwise AND Operator
	(B) Bitwise OR operator
	(C) ~ Bitwise Negate Operator
	(D) A Bitwise Exclusive OR
60.	What is a Single Operand Operator below?
	(A) &
	(B)
	(C) A
	(D) ~
61.	What number system is not understood by C language compiler directly?
	(A) Decimal
	(B) Octal
	(C) Binary
	(D) Hex Decimal
62.	is a picture in which the flows of computational paths are depicted.
	(A) Algorithm
	(B) Program
	(C) Code
	(D) Flow chart

63.	If the function returns no value then it is called		
	(A) Data type function		
	(B) Calling function		
	(C) Main function		
	(D) Void function		
64.	A function		
	(A) May or may not need input data		
	(B) May or may not return a value		
	(C) Both (A) and (B)		
	(D) None of these		
65.	Which of the following input function cannot be used to input multiword string in a		
	single function call?		
	(A) getche()		
	(B) gets()		
	(C) scanf()		
	(D) None of above		
66.	Which of the following declarations is not correct?		
	(A) unsigned float d;		
	(B) unsigned char c;		
	(C) int $b = 4$;		
	(D) float a;		
67.	Which of the following operators has highest precedence?		
	(A) *		
	(B) /		
	(C) %		
	(D) All have same precedence		

- 68. Correct way of commenting a single line is?
 - (A) /*printf("Hello C..");
 printf("How are you.");
 - (B) //printf("Hello C...");
 printf("How are you.");
 - (C) *printf("Hello C..");
 printf("How are you.");*
 - (D) / printf("Hello C..");/
 printf("How are you.");
- 69. What is an Identifier in C Language?
 - (A) Name of a Function or Variable
 - (B) Name of a Macros
 - (C) Name of Structure or Union
 - (D) All the above.
- 70. What is the number of characters used to distinguish Identifier or Names of Functions and Global variables?
 - (A) 31
 - (B) 32
 - (C) 33
 - (D) 28
- 71. Choose correct statements
 - (A) A constant value does not change.
 - A variable value can change according to needs.
 - (B) A constant can change its values.
 - A variable can have one constant value only.
 - (C) There is no restriction on number of values for constants or variables.
 - (D) Constants and Variables cannot be used in a single main function.

72.	What is The Format specifier used to print a String or Character array in C Print or
	Scanffunction.
	(A) %c
	(B) %C
	(C) %s
	(D) %w
73.	How do you accept a Multi Word Input in C Language?
	(A) SCANF
	(B) GETS
	(C) GETC
	(D) FINDS
74.	What is the difference between a declaration and a definition of a variable?
	(A) Both can occur multiple times, but a declaration must occur first.
	(B) A definition occurs once, but a declaration may occur many times.
	(C) A declaration occurs once, but a definition may occur many times.
	(D) There is no difference between them.
75.	C language was invented to develop which Operating System?
	(A) Android
	(B) Linux
	(C) Unix
	(D) Windows

76. What will be the output of the following C code?

```
#include <stdio.h>

intmain() {

printf("%d",1;

goto 11;

printf("%d", 2);

11 :goto 12;

printf("%d",3);

12:printf("d",4): }
```

- (A) 14
- (B) Compilation error
- (C) 124
- (D) 134
- 77. Which of the following is not a keyword in C language?
 - (A) Getchar
 - (B) Int
 - (C) Void
 - (D) Volatile
- 78. A library function exit() causes an exit from
 - (A) the loop in which it occurs
 - (B) the block in which in occurs
 - (C) the function in which it occurs
 - (D) the program in which it occurs

- 79. Which one is the correct statement for Divide and Conquer Algorithm in the context of merge sort
 - (A) If n<1 terminate and if n>=1, partition elements into two or more subcollections; sort each; combine into a single sorted list
 - (B) If n=1 terminate and if n>1, partition elements into two or more subcollections; sort each; combine into a single sorted list
 - (C) If n>1 terminate and if n<=1, partition elements into two or more subcollections; sort each; combine into a single sorted list
 - (D) None of the Above
- 80. Consider the given program and tell What will be the output of sum (8).

```
intsum(int n) {
if (n==0)
return n;
else
return n + sum(n-1); }
```

- (A) 40
- (B) 36
- (C) 8
- (D) 15
- 81. Which of the following problem cannot be solved using recursion?
 - (A) Tower of Hanoi
 - (B) Fibonacci series
 - (C) Tree Traversal
 - (D) Problems without base case

82.	C is alanguage
	(A) High Level
	(B) Low Level
	(C) Middle Level
	(D) Machine Level
83.	C language is available for which of the following Operating System?
	(A) DOS
	(B) Windows
	(C) Unix
	(D) All of these
84.	p++ executes faster than p+1 because
	(A) p uses registers
	(B) p++ is a single instruction
	(C) ++ is faster than +
	(D) None of these
85.	Which pair of functions below are used for single character 1/O.
	(A) Getchar() and putchar()
	(B) Scanf(() and printf()
	(C) Input() and output()
	(D) None of these
86.	When the main function is called, it is called with the arguments
	(A) argc
	(B) argv
	(C) None of these
	(D) Both (A)&(B)

87. How many times C.com is printed? intmain() { while(1) print("C.com"); return 0; (A) 1 time (B) Compilation Error (C) Infinite times (D) Runtime Error The concept of two functions with same name is known as? 88. (A) Operator Overloading (B) Function Overloading (C) Function Overriding (D) Function renaming What is storage class for variable A in below code? 89. intmain() int A; A = 10;printf("%d", A); return 0' (A) extern (B) auto (C) register (D) static

- 90. Which of the following recursive formula can be used to find the factorial of a number?
 - (A) fact(n) = n * fact(n)
 - (B) fact(n) = n * fact(n+1)
 - (C) $fact(n) = n^* fact(n-1)$
 - (D) fact(n) = n* fact(1)
- 91. Which of the following is not a valid C variable name?
 - (A) int number;
 - (B) float rate;
 - (C) intvariable count;
 - (D) int \$main;
- 92. Which of the following is true for variable names in C?
 - (A) They can contain alphanumeric characters as well as special characters
 - (B) It is not an error to declare a variable to be one of the keywords(like goto, static)
 - (C) Variable names cannot start with a digit
 - (D) Variable length can be only 10 character.
- 93. What will be the output of the following C code considering the size of a short int is 2, char is 1 and int is 4 bytes?

```
#include <stdio.h>
    intmain() {
    short inti = 20;
    char c = 97;
    printf("%d, % \n", size of(i), sizeof(c));
    return 0;
```

- (A) 2, 1
- (B) 2, 3
- (C) 2, 4
- (D) 2, 8

94.	Which conversion also called Automatic Type Conversion		
	(A) Implicit Type Conversion		
	(B) Explicit Type Conversion		
	(C) Both (A) and (B)		
	(D) None of the above		
95.	. What will be the value of the digit?		
	#include <stdio.h></stdio.h>		
	intmain()		
	{ int digit = 0;		
	for(;	digit <= 9;)	
	digit	++;	
	{	digit *= 2;	
		digit;	
		printf("%d", digit);	
	}	return 0;	
	}		
	(A) - 1		
	(B) 17		
	(C) 16		
	(D) 19		

96. What is the output of the C Program.? intmain() { if(4 > 5)printf("Hurray..\n"); printf("Yes"); return 0; } (A) Yes (B) Hurray..Yes (C) Hurray..Yes (D) No Output Which of the following is correct Associativity for == operator? 97. (A) Left to right (B) Right to left (C) Left to left (D) Right to right Which of the following has same Precedence? 98. A. ++ B.-> C.! (A) A and B (B) B and C (C) A and C (D) All has same Precedence

```
99.
      What is the output of this program?
                   void main() {
                   int x=0;
                   for(;;) {
                                if(x==3)
                                break;
                                printf("%d", ++x); }
      (A) 123
      (B) 0123
      (C) 12
      (D) Compilation Error
100. What is the output of this program?
                   #include <stdio.h>
                   intmain()
                                      {
                         int a = 5;
                         if (a==6);
                         a = 0;
                         if (a == 5)
                         a++;
                         else a += 2;
                         printf("%d", a);
                         return 0;
      (A) 6
      (B) 8
      (C) 5
      (D) 2
```

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