Date: 7-03-2022

Registration number:

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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**  **BCA - I SEMESTER**  SEMESTER EXAMINATION: OCTOBER 2021  (Examination conducted in January-March 2022)  **CA 1221 - Programming in C**  **Time- 3 hrs**   **Max Marks-100**  This question paper contains \_**6**\_\_printed pages and four parts | | |
|  | **PART A**  **Answer all the 20 MCQs**  **Each answer carries 1 mark.** | **20** |
| 1 | **. What's the output of the following?**  main()  {  int k = (3,0,2,7);  printf("%d",k );  }  A) 3  B) 0  C) 2  D) 7 |  |
| 2 | **What's the output of the following?**  main()  { int a=4,b=5;  printf("%d",printf("%d%d",a,b));  }  A) Compilation Error  B) 245  C) 452  D) 542 |  |
| 3 | **If Name is a character string which of the following input statement in C is correct?**  A) SCANF(“%c”, Name)  B) Scanf(“%s”, Name)  C) scanf(“%s”, &Name)  D) scanf(“%s”, Name) |  |
| 4 | **The CONDITIONAL STATEMENT is used to**   1. Compare value contained in two variables 2. To decide truth of a relational expression 3. To find the result of a given assignment statement 4. To print the content of a given variable |  |
| 5 | **Difference between C Arrays, ary[10] and cry[10][10] is.?**  A) ary[10] is a single dimensional array. cry[10][10] is a Multidimensional array.  B) ary[10] is a multidimensional array. cry[10][10] is a single dimensional array.  C) Size of ary[10] is sizeof(10\* int). Size of cry[10][10] is sizeof(10\*int).  D) None of the above. |  |
| 6 | **what is the values in X and Y after the execution of this code?**  X = 10; Y = 15;  X = X+ Y;  Y = X – Y;  X = X – Y;   1. 10,15 2. 25,15 3. 10, -5 4. 15, 10 |  |
| 7 | **What is the output of this C code?**  if( 15 > 10 )  printf("Bangalore ");  else if(6%2 == 0)  printf("Mangalore ");  printf("Mumbai");     1. Bangalore 2. Bangalore Mumbai 3. Bangalore Mangalore Mumbai 4. Bangalore Mangalore |  |
| 8 | **Choose a right C Statement.**   1. Loops or Repetition block executes a group of statements repeatedly 2. Loop is usually executed as long as a condition is met C) Loops usually take advantage of Loop Counter D) All the above |  |
| 9 | **If you have to make decision based on multiple choices, which of the following is best suited?**  A) if B) if-else C) if-else-if D) All of the above |  |
| 10 | **What is the output of this function for N equal to 7**  int Fun( int N)  { int S=0, D,P=1;  while( N != 0){  D = N%2;  N = N/2;  S = S + D\*P;  P=P\*10;  }  return S  }   1. 1000 2. 111 3. 101 4. 1110 |  |
| 11 | **What will be the value of `a` after the following macro is executed**    #define square(x) x\*x  a = square(2+3)  A) 25 B) 13 C) 11 D) 10 |  |
| 12 | **Which loop is guaranteed to execute at least one time.**  A.) for B). while C). do while D) None of the above |  |
| 13 | What is the function used to allocate memory to an array at run time with Zero initial value to each.?  A) calloc()  B) malloc()  C) palloc()  D) kalloc() |  |
| 14 | **what is the output?**  main()  { int a,b,c;  a = 0; b=1; c= a+b;  while( c< 10){  printf(“%d “,c);  a = b; b = c;  c = a + b;  }  }   1. 0 1 2 3 4 2. 0 1 3 5 8 3. 1 2 3 5 8 4. 1 1 2 3 5 |  |
| 15 | **What is the output of C Program with arrays and pointers.?**  int main()  { int ary[] = {11, 33, 55};  int \*p, \*q;  p = ary;  q = ary+2;  printf("%d %d",\*p, \*q);  }  A) 11 55  B) 11 13  C) 11 33  D) Compiler error |  |
| 16 | **What is the output?**  main()  { int j,M, A[10] ={ 0, 1,-2,3,-7,5};  M = A[1];  for( j =1; j <=5; j++){  if( A[j] < M)  M = A[j];  }  printf(“%d “, M);  }   1. 0 2. 5 3. -7 4. -3 |  |
| 17 | **What is the output of the program?**  main()  { char \*str1="hello, world\n";  printf("%d", strlen(str1));  }   1. 10 2. 12 3. 13 4. Undefined behaviour |  |
| 18 | **What will strcmp() function do?**  A) compares the first n characters of the object B) compares the string C) undefined function D) copies the string |  |
| 19. | **What is the minimum and maximum Indexes of this below array.?**  int main()  { int ary[8];  return 0;  }  A) -1, 8  B) 0, 8  C) 1,8  D) 0,7 |  |
| 20 | **The first and second arguments of fopen() are**  A). A character string containing the name of the file & the second argument is the mode B). A character string containing the name of the user & the second argument is the mode C). A character string containing file pointer & the second argument is the mode D). None of the mentioned |  |
|  | **PART B**  ***Answer any five questions from PART B.  Each answer carries 4 marks.*** | **5 x 4** |
| 21 | Write function program in C to convert temperature in Celsius into Fahrenheit .  ( F = 9/5C + 32 ). Let the function return the temp in Fahrenheit | 4 |
| 22 | Write a **flowchart with pseudo code** to find the TRACE of a NxN square matrix. | 4 |
| 23 | .Write a function program in C using **pointers to** make a duplicate of a given string.  Prototype: **void fnStrCpy( char \*T, char \*S)** | 4 |
| 24 | Write a function program in C to return the **length of a string** | 4 |
| 25 | What are **pointers**? With examples show how do you declare a pointer? How do you get the address of a variable? And how do you access the data if you know the address of a variable. | 4 |
| 26 | Write a function program in C to return 1 if the given number is a **PRIME number**. Else let the function return -1. | 4 |
| 27 | What is a **CONDTIONAL STATEMENT** in C? With examples explain the use of two conditional statements. | 4 |
|  | **PART C**  *Answer any* ***five questions*** *from Part C. Each answer carries 6 marks.* | **5 x 6** |
| 28 | Write a program in C to input some numbers into an array and find the **smallest number** in the array and it’s location. | 6 |
| 29 | What is **DYNAMIC ALLOCATION of memory?** With examples explain the use of **malloc**() and **calloc**() in allocating memory. How does calloc() differ from malloc()? | 6 |
| 30 | Write a program in C to input some numbers into an array, and **reverse the content** of the array. | 6 |
| 31 | Show how you can use a new data type using structure to create a record for a student with SID, Name and marks in three subjects, Total , Average & Results. Show how you would input and process and print data from the STUDENT record.( no need of writing the whole program. Just show how you would input and processing the information. ) | 6 |
| 32 | Explain with examples what is meant by passing arguments to a function program in C by **VALUE** and by **REFERENCE**. | 6 |
| 33 | Write a program in C to search for a number using **LINEAR SEARCH** technique, assuming that the array contains numbers in the increasing order. | 6 |
| 34 | Write a **command line program** in C to make a duplicate of a file. ( name of the program **FileCopy.c** ) | 6 |
|  | **PART D**  ***Answer any two questions from the following. Each answer carries 14 marks.*** | **15x 2** |
| 35 | Write a functions to input numbers into an array, print the content and array and to return the **standard deviation** of N numbers in an array. Use them in the main program to calculate the standard deviation of N numbers is an array.   Standard deviation = **√( ∑(Xi –Mean)2/N )** | 15 |
| 36 | Write a functions input data into a matrix, print the content of the matrix and to find **the product of two matrices** of dimension MxP and Px N. Use these functions in the main program to find the product of two matrices and display the result. | 15 |
| 37 | 1. How do you declare a file? With an example each explain the use of file functions to **open a file**, and to **write data** to a file and how to **read the data from the file**. 2. Explain why we need the string functions **strcpy()** and **strcmp().** Show how they can be used to sort some names in a character matrix using the **BUBBLE sort technique**. ( *Just show the* ***code segment*** *for sorting presuming that the character matrix contains N strings*) | 7  8 |