**RV College of Engineering, Bengaluru-560059**

**( Autonomous Institution affiliated to VTU, Belagavi )**

**Department of Computer Science and Engineering**

**Model Question Paper**

**First Semester Autonomous Examinations**

**22ES14A**

**Fundamentals of Programming using C**

**Duration: 3 Hours Max marks: 100**

**Note: Answer all the questions from Part-A**

**Answer any 5 full questions from Part-B choosing one from each choice.(Question number 2 is compulsory)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PART-A** | | | | | | | | |
| Sl No | |  | **Marks** | | **CO** | **BTL** | **PO** | **PI CODE** |
| 1.1 | | \_\_\_\_\_\_\_ Phase is also called construction or code generation phase. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.2 | | C programs are converted into machine language with the help of \_\_\_\_\_\_\_\_\_. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.3 | | The size of  integer variable in C is \_\_\_\_\_\_\_\_\_\_\_\_\_. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.4 | | Identify the program that combines object modules to form an executable program. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.5 | | What is the output of the following code?  #include<stdio.h>  int main()  {  int a=1, b=2, c=3, d=4, e=5, res;  res = a + b / c – d \* e;  printf(“\n Result = %d”, res);  res = (a + b) / c – d \* e;  printf(“\n Result = %d”, res);  res = a + (b / (c-d)) \* e;  printf(“\n Result = %d”, res);  return 0;  } | 2 | | 2 | 2 | 2 | 2.5.2 |
| 1.6 | | What is the output of the following code?  #include<stdio.h>  int main()  {  int x=10, y=20, res;  res = y++  +  x++;  res += ++y  +  ++x;  printf(“\n x = %d  y = %d   RESULT = %d”, x,y, res);  return 0;  } | 2 | | 2 | 2 | 2 | 2.5.2 |
| 1.7 | | If an array is declared as arr[] = {1,3,5,7,9}; then what is the value of sizeof(arr[3])? | 1 | | 2 | 2 | 2 | 2.5.2 |
| 1.8 | | Differentiate loop regulating statement break from continue. | 2 | | 1 | 1 | 1 | 1.6.1 |
| 1.9 | | The memory address of the first element of an array is called \_\_\_\_\_\_\_\_\_\_. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.10 | | Name the function which returns the int type value of a string passed to it. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.11 | | What is the return value when the instruction y=strcmp(“ABC”,”abc”); is executed? | 1 | | 2 | 3 | 2 | 2.5.2 |
| 1.12 | | The parameters passed to function are called \_\_\_\_\_\_\_\_\_\_\_\_\_ parameters. | 1 | | 1 | 1 | 1 | 1.6.1 |
| 1.13 | | The life of \_\_\_\_\_\_\_\_\_\_\_\_\_ variable declared in a function ends when the function is exited. | 1 | | 2 | 1 | 1 | 1.6.1 |
| 1.14 | | What is the use of structure? | 1 | | 2 | 3 | 2 | 2.5.2 |
| 1.15 | | What is the purpose of specifying data type for a pointer variable? | 1 | | 2 | 3 | 1 | 1.6.1 |
| 1.16 | | What is the output of the following code?  int main()  {      struct tree      {          int h;          int b;      }      struct tree tree1;      tree1.h=10;      printf("Height=%d, Width=%d\n",tree1.h,tree1.b);      return 0;  } | 2 | | 1 | 3 | 2 | 2.5.2 |
| PART-B | | | | | | | | |
| 2 a. | What is the use of writing an algorithm? Explain the control structures which can be employed by algorithms with example for each. | | | 8 | 1 | 1 | 1 | 4.1.1 |
| b. | With a neat diagram explain the working of a Processor in a computer system. | | | 8 | 1 | 1 | 1 | 1.7.1 |
|  |  | | |  |  |  |  |  |
| 3a. | Give the structure of a C program with an example. | | | 6 | 1 | 1 | 1 | 1.7.1 |
| b. | Give the operator precedence chart? What is associativity and precedence | | | 6 | 2 | 1 | 1 | 1.7.1 |
| c. | Write a program to find the largest of three numbers using ternary operator. | | | 4 | 2 | 3 | 2 | 2.5.2 |
|  | *OR* | | |  |  |  |  |  |
| 4 a. | What do you understand by identifiers and keywords and explain its rules | | | 6 | 1 | 1 | 2 | 2.6.3 |
| b. | Write a program to convert degrees Fahrenheit into degree Celsius. | | | 4 | 2 | 2 | 2 | 2.5.2 |
| c. | Write a program to check given number is palindrome | | | 6 | 3 | 3 | 2 | 2.5.2 |
|  |  | | |  |  |  |  |  |
| 5 a. | Write a C program to print the following output and add a note on the logic of the program.  \*\*\*\*\*\*  \*RVCE\*  \*\*\*\*\*\* | | | 6 | 3 | 3 | 3 | 3.6.2 |
| b. | Write a program to count the total number of nonzero elements in a two-dimensional array and add a brief note on logic. | | | 6 | 3 | 3 | 3 | 3.7.1 |
| c. | Identify errors, correct them in the following program, rewrite and mention the output of the corrected program.  #include<stdio>  int main([])  {  int i,c, n=4;  char vowels[5]={'a','e','i','o','u'}  for(i=n;i>=0:i- - )) {  c=(int) vowels[i]-32  printf(‘ "\t%c",c);  }  return 0;  }  } | | | 4 | 2 | 4 | 2 | 2.8.2 |
|  | *OR* | | |  |  |  |  |  |
| 6 a. | Write a program to compute and print the electricity bill as per the rates given in the following table according to the units consumed.   |  |  | | --- | --- | | Units | Rate(Rs) | | 00 and above | 5.50/unit + 20 | | 200-500 | 3.50/unit + 30 | | 100-200 | 2.50/unit + 40 | | Less than 100 | 1.50/unit + 50 | | | | 6 | 3 | 3 | 4 | 4.5.1 |
| b. | Write a program that reads an array of 100 integers. Then display all the pairs of elements in the array whose sum is 50. | | | 6 | 2 | 3 | 3 | 3.6.2 |
| c. | Compare the following code snippets and mention both are finite loops or infinite loops or both are different loops and add a note on the logic of any one code snippet.   |  |  | | --- | --- | | #include<stdio.h>  int main(){  int i,j;  sectionA:  for (i=0,j=5;i<5,j>=0;i++,j--)  {  printf("%d %d",j,i);  goto sectionA;  }  } | #include<stdio.h>  int main(){  int i=0,j=5;  for (;;)  {  printf("d %d",j,i);  i++;  j--;  }  } | | | | 4 | 2 | 4 | 2 | 2.7.1 |
|  |  | | |  |  |  |  |  |
| 7 a. | Illustrate any 4 standard string handling functions with examples. | | | 8 | 1 | 2 | 1 | 1.6.1 |
| b. | Write a C program to accept 30 names and initialize the student array. | | | 8 | 3 | 3 | 2 | 2.5.2 |
|  | *OR* | | |  |  |  |  |  |
| 8 a. | Write functions to convert feet to inches, convert inches to centimeters, and convert centimeters to meters. Write a program that prompts a user for a measurement in feet and converts and outputs this value in meters.  **Facts to use:** 1ft=12 inches, 1 inch=2.54 cm, 100cm= 1 meter. | | | 10 | 2 | 3 | 1 | 1.6.1 |
| b. | Using functions, write a program to generate prime numbers between given numbers. | | | 6 | 2 | 3 | 1 | 1.6.1 |
|  |  | | |  |  |  |  |  |
| 9a. | Write a C program to add two complex numbers using structures. | | | 8 | 2 | 3 | 1 | 1.6.1 |
| b. | Explain the concept of structures within structures with the help of an example. | | | 8 | 4 | 2 | 2 | 2.5.2 |
|  | OR | | |  |  |  |  |  |
| 10 a. | With the help of pointers, write a C program to add two numbers. | | | 6 | 2 | 3 | 2 | 2.5.3 |
| b. | Explain the concept of pass by value and pass by reference with example. | | | 10 | 1 | 2 | 1 | 2.5.2 |