CHRIST (DEEMED TO BE UNIVERSITY), BENGALURU - 560029

End Semester Examination October/November - 2018 Master of Computer Applications I SEMESTER

Code: MCA131 Max.Marks: 100
Course: PROGRAMMING IN C Duration: 3Hrs

SECTION A

Answer all the questions.

5X20 = 100

a) Write a program to convert and display a decimal number to binary number system using bit-wise operators. The decimal is supposed to be received from the user.

[OR]

- **b)** What is the use of **break** and **continue** statements in loop control structures? Illustrate with the help of examples. (10)
- a) Compare and contrast between explicit typecasting and implicit typecasting with the help of examples.

[OR]

- **b)** Write a C program to read roll no, name and marks of three subjects and (10) calculate the total, percentage and division (>75% = Distinction, 60% to 74.99% = First Class, 50% to 59.99% = Second class, 40% to 49.99% = Pass Class, < 40% = Failure)
- 5 a) Compare and contrast between function-like macro and functions with suitable examples. (10)

[OR]

- **b)** What are the different storage classes available in C? Explain with examples. (10)
- 7 a) What will be the output of the below program? You may mention the bugs, if (10) any.

```
#include <stdio.h>
#include <stdlib.h>
int i = 10;
int* sample(void)
int s = 1;
int l = 100;
printf("%d", i);
printf("%d", s);
s = s + 1;
return &l;
}
int main()
int i = 10;
int *r = NULL;
printf("%d", i);
r = sample();
printf("%d", *r);
return 0;
```

[OR]

8 b) What would be the output of the below program? Map the variables in the below program to different segments in the memory layout of the corresponding executable. Reason out your answer.

#include <stdio.h>

}

```
#include <stdlib.h>
       static int gs Value = 200;
       void sample(int pNum)
       float f temp;
       f \text{ temp} = (float) pNum;
       gs Value = 20;
       printf("%f\n", f temp);
       printf("%d\n", gs Value);
       int main()
       static int si val = 20;
       char c ch = 'A';
       int i = 10;
       gs Value = 20;
       char*s name = NULL;
       sample(i);
       printf("%d%c%s\n",si val, c ch, s name);
       printf("%d\n", gs_Value);
       return 0;
    a) Explain the output of below program by bringing out the bugs in it. What
9
                                                                                     (10)
       are the possible validations in this program?
       #include <stdio.h>
       #include <string.h>
       #define MAX 32
       int main()
       char *ret = NULL;
       int str len = 0;
       char str input[MAX] = \{'\0'\};
       ret = fgets(str input, MAX, stdin);
       if(NULL == ret)
       return 0;
       str len = strlen(str input);
       str input[str len] = '\0';
       printf("%s\n", str input);
       return 0;
       }
                                           [OR]
10 b) Discuss any five pointer operations and pointer arithmetic with suitable
                                                                                     (10)
```

- examples.
- **11** a) Explain the working of *strtok* function with the help of suitable examples. (10)What are the demerits of this function?

[OR]

- **12 b)** What is a *pointer to an array*? What are its applications? Implement a (10)program to demonstrate pointer to array.
- 13 a) Write a program accept a string from the user and copy to another string. (10) Don't use any string library functions. The program should be modular and there should be adequate error checking and validations.

[OR]

- **14 b)** Write a program to accept a string from user and remove the spaces in it. **(10)** Display the resultant string. Make the program as modular as possible.
- **15** a) What is memory leak? What are the challenges with it? How can we get rid (10) of memory leak?

[OR]

- 16 b) Explain how memory can be allocated and then de-allocated to the following pointer so that it works similar to a 2D array.int **dptr;
- 17 a) What is a union? How is it different from a structure? Explain with an example. (10)

[OR]

18 b) Write a C program to count the number of vowels and consonants in a text **(10)** file.

19 a) (10)

What would be the output of the following program? You may assume that the program is executed on 32-bit machine.

```
#include <stdio.h>
#define MAX 32
union u
char category;
int id;
char name[MAX];
int age;
} u_var;
struct s
char category;
int id;
char name[MAX];
int age;
} s var;
int main()
printf("size of union = %d", sizeof(u var));
printf("\nsize of structure = %d", sizeof(s var));
return 0;
}
```

[OR]

20 b) Discuss the various I/O functions used for text file operations in C. (10)