

**Bharti Vidya peeth's
Institute of Computer Applications and Management
A-4, Paschim Vihar, New Delhi-63**

FIRST SEMESTER [MCA] Internal Examination, October 2017

Paper Code: MCA – 103	Subject: Programming in C
Time: 2 Hours	Maximum Marks: 45
Note: Attempt FOUR questions in all. Question No. 1 is compulsory and attempt one question from each unit.	

1. Answer all the following questions briefly:- 1.5 x 10 = 15
 - (a) Explain the output of this program? 1.5

```
void main() { int a=b=c=10;
a=b=c=50;
printf("\n %d %d %d",a,b,c); }
```
 - (b) Write an example to read and print the values of structure type variable from the user? 1.5
 - (c) Design a fun() with a static variable count that is incremented every time fun() is called. 1.5
What value is assigned to a static variable if it is not initialized.
 - (d) Differentiate between the following templates: 1.5
 - i. `union Test{int x; char y; float z;}t;`
 - ii. `structure Test1{int x; char y;float z;} t1;`
 - (e) With an example explain how continue shall be used 1.5
 - (f) Explain the output of the following code: 1.5

```
#include <stdio.h>
int main()
{ int num=212, i;
for (i=0; i<=2; ++i)
printf("Right shift by %d: %d\n", i, num>>i);
printf("\n"); return 0;}
```
 - (g) With an example explain any system defined variable length argument functions in C? 1.5
 - (h) Differentiate between the following: 1.5

```
void perror(const char *s); versus char *strerror(int errnum);
```
 - (i) Explain automatic storage class specifier? 1.5
 - (j) Distinguish between the following: 1.5

```
void* malloc(size_t size); versus void* calloc(size_t num, size_t size);
```

UNIT - I

2. (a) Write a C Program to read a string and count number of vowels in it 5
- (b) Write a C Program to print 15 terms of 1 , 2 , 4 , 7 , 11 , 16 , 5
3. (a) Write a C language program to enter n elements in array and find second smallest number from an array. 5
- (b) Write a C Program to read character from keyboard and display message whether character is alphabet , digit or special symbol 5

UNIT - II

4. (a) Write a function to create a 2D-array dynamically using array of pointers. The number of rows and columns as well as their values should be accepted from the user. 5
- (b) Write a function add() that adds two complex numbers of type struct complex and returns a complex number. The struct complex is defined below: 5

```
typedef struct complex{float real;
float imag;}complex;
```
5. (a) Write a function to create a 2D-array dynamically using pointer to pointer. The number of 5

- rows and columns as well as their values should be accepted from the user.
- (b) Given a union defined as: 5
- ```
union job
{
 char name[32];
 float salary;
 int workerNo;
} job1;
```
- Write a program to read in values for job1 from the user and display the same. What will be the output when all members of job1 are displayed.

### UNIT – III

6. (a) What do you mean by pre-processor directives? List and explain its different categories. 5
- (b) Write a program to read a sentence from the user, enter it into a file and then display the frequency of the character 'a' in the same. 5
7. (a) Explain the usage of fseek(). Write a program to write the string "This is C Programming" to a file, through usage of fseek() change this string to " This is a powerful language". 5
- (b) Through examples explain the difference between different functions available for program termination. 5