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SEAT No. :

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M.Sc. Tech. - I

INDUSTRIAL MATHEMATICS WITH COMPUTER APPLICATIONS

MIM - 104 : C Programming

(2008 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data if necessary.*

Q1) Attempt any eight of the following:

[8 × 2 = 16]

- a) What is the purpose of realloc () ?
- b) What is the difference between an array and a pointer?
- c) Define Macro.
- d) Is **p and &(*p) are same? Justify.
- e) State the difference between getch () and getchar ().
- f) Compare between bitwise operator & with bitwise operator ^.
- g) What would be the output of the following code?

```
# include < stdio . h>
```

```
int main ( )
```

```
{
```

```
    char n[ ] = "hellonworld!";
```

```
    char s[13];
```

```
    sscanf ( n, "%s", s);
```

P.T.O.

```
    print f (“ %s\n”, s);  
  
    return 0;  
  
}
```

- h) What is a recursion?
- i) Explain the use of a function: fread ();
- j) What would be the output of the following code?

```
# include < stdio.h>  
  
void main ( )  
  
{  
  
    int k = 5;  
  
    int *p = & k;  
  
    int **m = & p;  
  
    ** m = 6;  
  
    print f (“%d\n”, k);  
  
}
```

Q2) Attempt any four of the following:

[4 × 4 = 16]

- a) What is a function pointer? Explain with an example.
- b) Write a short note on “C preprocessor”.
- c) What are the limitations of static memory allocation?
- d) Write a ‘C’ program to concatenate two strings without using strcat () function.
- e) Create a structure to store the employee number, name, department and basicsalary. Write a ‘C’ program to create an array of structure to accept and display the values of 5 employees.

Q3) Attempt any four of the following:

[4 × 4 = 16]

- a) Write the use of fread () and fwrite(). Give an example of each give syntax.
- b) Write a 'C' program to create a file and reverse the contents of the file.
- c) Write a 'C' program to define 3 × 3 matrix and print sum of diagonal elements.
- d) What is a pointer? Is division of two pointers allowed? Explain following operations on pointers with example.
 - i) Decrement
 - ii) Indirection
- e) Write a 'C' program (menu driven) for the following options
 - i) Read two strings.
 - ii) Stringconcat.

Q4) Attempt any four of the following:

[4 × 4 = 16]

- a) Explain malloc () with suitable example.
- b) Give advantages and disadvantages of an array.
- c) Compare if and switch statement with example.
- d) Write a 'C' program to count the number of words in a given text file.
- e) Write a 'C' program to display first 'n' even numbers.

Q5) Attempt any four of the following:

[4 × 4 = 16]

- a) Write the use of gets () and puts () with appropriate example.
- b) What would be the output of the following code?

```
i) # include <stdio.h>

struct student

{

    char * name;

};

void main()

{

    struct student s, m;

    s.name = "st";

    m = s ;

    printf("%s %s", s.name, m.name);

}
```

```
ii) # include <stdio.h>

# define foo (m,n) "m # # n"

int main ( )

{

    print f ("%s\n", foo(k,l));

}
```

- c) What are the limitations of array of pointers to strings?
- d) Write a note on conditional compilation.
- e) Write a function which accepts an integer and checks whether it is a palindrome or not?

