

- (i) Automatic and static variables
- (ii) Global and local variables. (8)

Q.6 a. What would be the output of the program given below?

```
typedef struct soldier
{
char *name;
char *rank;
int serial_number;
} SOLDIER;
SOLDIER soldier1, soldier2, soldier3, *ptr;
ptr = &soldier3;
soldier3.name = "Anand Mohanti";
printf("\n%s", (*ptr).name);
printf("\n%c", *ptr->name);
printf("\n%c", *soldier3.name);
printf("\n%c", *(ptr-> name + 4));
```

(6)

- b. Define a structure to store the following information about an employee
Name, Sex(male, female), Marital_status(single, married, divorced or widowed), age.(using bit fields)

(4)

- c. How is multidimensional arrays defined in terms of an array of pointer? What does each pointer represent?

(6)

Q.7 a. Write a program to implement the stack using linked list. (8)

- b. Explain the following functions with the help of examples:

(i) malloc() (ii) calloc() (iii) realloc() (8)

Q.8 a. A file of employees contains data (eno, name and salary) for each employee of a company. Write a program to do the following:

- (i) create the file
- (ii) insertion in a file
- (iii) deletion from a file
- (iv) modification in a file (12)

- b. What is insertion sort? Write a program to sort the given list of integers using insertion sort. (4)

Q.9 a. Define a macro. Write a nested macro that gives the minimum of three values. (5)

- b. Write a program to check whether a box is cube, rectangle or semi-rectangle. Prepare a test procedure to test this program. (5)

- c. A program has been compiled and linked successfully. When you run this program you face one or more of the following situations

- (i) Program executed, but no output
- (ii) It produces incorrect answers
- (iii) It does not stop running.

What are the possible causes in each case and what steps would you take to correct them?

(6)