DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER II [EC/IC/CE/IT]
SUBJECT: C PROGRAMMING-II

Examination	**: Second Sessional**	**Seat No.**	**: _____**
Date	**: 2nd March, 2016**	**Day**	**: Wednesday**
Time	**: 3:45pm to 5:00pm**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 **Do as directed.** **[12]**

(1) **[2]**

```
Struct
{ short s [5];
 union
     {
     float y;
     long z;
      }u;
 } t;
```

Assume that objects of the type short, float and long occupy 2 bytes, 4 bytes and 8 bytes, respectively. What will be the memory occupied by variable t?

(2) What is the difference between *ptr++ and (*ptr)++ ? Where ptr is pointer vaiable. **[2]**

(3) What is the difference between following 2 type of functions? **[2]**
1) type (*fptr) ( ) ; 2) type *gptr ( ) ;

(4) What is Bit-Fields? What are the important points to be considered when implementing bit-fields in structures? **[2]**

(5) **[4]**

(A) What will be the output of the following program?

```
void main( )
{
  char s1[10] = "123456789", *p;
  p = s1 + 2;
  *p = '0' ;
  printf ("%s", s1);
  printf("%c", p+4);
  printf("%c", *(p+4));
}
```

(B) Determine the Output.

```
# define print(x) printf ("%d", x)
int x;
void Q(int z)
{   z += x;   print(z);   }

void P(int *y)
{   int x = *y+2;
  Q(x);
  *y = x-1;
  print(x);    }

void main()
{  x=5;
   P(&x);
   print(x);     }
```

Q.2 Attempt ***Any Two*** from the following questions. **[12]**

(1) **[6]**
(A) Implement Pascals Triangle using Pointers to 2D Array.
(B) Given char *s[4]= {"Orange", "Banana", "Apple", "Grapes"}, Write the function to sort given strings.

(2) **[6]**
WAP using structure to read and display two heights. Heights should be entered in form of Feet and Inches (Eg. 5'10"). Create a function Add() which takes two Heights as parameter and performs addition of them. (Eg. h1= 5' 7", h2= 6' 9", then your answer for addition should be 12' 4").
Note:- 12 inches = 1 Feet.

(3) **[6]**
Define a structure named Bank. It should have members that include the Cust_name, Cust_id, Gender, Account_No and Balance_info.

Implement following criteria:

		1)If Balance >1Lac, then provide interest rate as 15% 2)If Balance > 50k and < 1Lac, then provide interest rate as 10% 3)If Balance < 50k and customer is 'Male' then provide interest rate as 5% and for 'Female' provide rate as 7%. Implement the above structure using function and print the updated information of 50 customers.	
Q.3	(1)	Write a program using pointers as arguments to function to count the number of words ,tab spaces, blank spaces in a given string.	**[6]**
	(2)	Answer the Following Question with appropriate reason typedef struct abc { char x; int a[10]; }ABC; State which of the following declarations are invalid and Why? a) struct abc v1; b) struct abc v2[10]; c) struct ABC v3; d) ABC a,b,c; e) ABC a[10];	**[3]**

	(3)	Find error if any and write the output of following code segment?
		void f(int *p, int *q)
		{
		p = q;
		*p = 2;
		}
		int i = 0, j = 1;
		void main()
		{
		f(&i, &j);
		printf("%d %d \n", i, j);
		}
			[3]

		OR	
Q.3	(1)	Write a program to scan a string from the user & check whether the entered string is Palindrome or not using function with pointer.	**[6]**

	(2)	What is the output of following code?
		struct student
		{ char *name; };
		struct student s;
		struct student fun(void)
		{
		s.name = "newton";
		printf("%s\n", s.name);
		s.name = "alan";
		return s;
		}
		
		void main()
		{
		struct student m = fun();
		printf("%s\n", m.name);
		m.name = "turing";
		printf("%s\n", s.name);
		}
			[3]

	(3)	Find error if any and write the output of following code segment?
		main()
		{
		int arr[]={ 1,2,3,4,5}, i=1, j=2;
		printf("%d", *(arr + 1+ i));
		printf("%d", *(arr + *(arr + 1)));
		printf("%d", *(arr + i) + *(arr +j));
		printf("%d", *(arr + i*j));
		}
			[3]