Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar

IT105 Introduction to Computer Programming. Mid-Sem Test-2, Sem-I, 2014-15.
Closed Book Exam. Duration -1 Hour. Weightage 25%

ID No: **NAME:**

This question paper has four pages on two sheets. Write your name and Idno on each sheet. Write your answers in the space provided. For scratch work, you have an extra answerbook.

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1. What will be the output after the following code is executed? Give reasons. [2]

```
int i = 1, j = 1 ;
while (i < 2) {
   int i=2, j=2; printf("%d %d ",i,j); i++; j++;
   }
```

2. What will be the output after the following code is executed? Give reasons.
   char * str="kernighan"; printf("%c",*str+1); str++; printf("%c",*str); [2]

3. What is the output of the following program? Give reasons. [3]

```
#include <stdio.h>
void swap(char *s, char *t);
main()
{
      char p[]="kernighan", q[]="richie";
      printf("%s %s\n", p, q);
      swap(p,q);
      printf("%s %s\n", p, q);
}
void swap(char *s, char *t)
{     char *temp;
      temp=s; s=t; t=temp;
}
```

4. Write a function that takes as its argument a pointer to a string made up of only 0s and 1s (positive binary number represented as string) and returns an integer having the same value. [6]

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5. In main(), a character array carr[100] is declared and initialized with a string of size m <100. Implement a function **`void truncate(char *s, int k)`** that truncates the passed string to exactly k (k <100) characters. If k >m, required number of spaces are prepended to make the string exactly k characters long. [6]

6. A complex number z=a+ib can also be represented as z = r exp (is) = r cos(s) + i r sin(s). In C language, a complex number may be represented as a two-element array of real numbers. Using such a representation, implement the logic to convert (a,b) to (r,s) using a suitably designed function **polar().** Write a program that reads (a,b) as input and invokes **polar()** to compute and output (r,s). [6]