AMIETE – CS/IT (OLD SCHEME)

Time: 3 Hours | **DECEMBER 2011** | Max. Marks: 100

NOTE: There are 9 Questions in all.
- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   Choose the correct or the best alternative in the following: (2×10)

a. The output of below program is ….
```
main()
{
        printf("\nab");
        printf("\bsi");
        printf("\rha");
}
```

(A) absiha   (B) hai
(C) abha   (D) \nab\bsi\rha

b. Each C pre-processor directive begins with

(A) #   (B) include
(C) main()   (D) {

c. The output of below program is ….
```
main()
   {
        printf("%d", out);
   }
int out=100;
```

(A) 100   (B) Compilation Error
(C) nothing will be printed   (D) out

d. Minimum number of temporary variables required to swap the contents of two integer variables are

(A) two   (B) three
(C) one   (D) zero

e.   The output of below program is ….
     main()
        {
                char not;
                not=!2;
                printf("%d",not);
        }

     (A) 0   **(B)** Compilation Error
     (C) 1   **(D)** 2

f.   Only _____ arithmetic operations can be used on pointers

     (A) ONE   **(B)** TWO
     (C) THREE   **(D)** FOUR

g.   The output of below program is ….
                #define prod(a,b) a*b
                main()
                {
                        int x=3,y=4;
                        printf("%d",prod(x+2,y-1));
                }

     (A) 15   **(B)** 11
     (C) 12   **(D)** 10

h.   Short int holds the data size of _____ bits long

     (A) 32 bits   **(B)** 8 bits
     (C) 16 bits   **(D)** 4 bits

i.   The output of below program is ….
                main()
                {
                        static int var = 5;
                        printf("%d ",var--);
                        if(var)
                        main();
                }

     (A) 5 4 3 2 1   **(B)** 1 2 3 4 5
     (C) 5 5 5 5 5   **(D)** 4 4 4 4 4

j.   The output of below program is ….
        main()
        {
        int i=3;
        switch(i)

```
            {
            default:printf("zero");
            case 1: printf("one");
            break;
            case 2:printf("two");
            break;
            case 3: printf("three");
            break;
            }
        }
```

(A) one two three   **(B)** Compiler Error
(C) three   **(D)** zero

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

Q.2 a. What is complexity? Discuss different types of complexity parameters? **(2+6)**

b. Write an algorithm to generate all prime numbers between 1 and 100.   **(8)**

Q.3 a. What are the different ways of representing strings in C language? Write a program to print the first letter of each word of a name entered through key board.   **(3+5)**
   example.   input: programming and problem solving
                   output: p. a. p. s.

b. Discuss all the bitwise operators with examples.   **(8)**

Q.4 a. What are the differences between calloc() and malloc() functions? Write a program to find maximum and minimum among 10 floating point numbers using dynamic memory allocation technique.   **(3+7)**

b. What is the difference between call by value and call by reference? Write a program to swap two floating point numbers using call by reference method.   **(3+3)**

Q.5 a. How can typedef be used to define a type of structure? Write a program to store the record of 10 employees with their name, salary and employee id and then print the name of all the employees whose salary is greater than Rs.5000.   **(8)**

b. Write a program to construct a 3×3 matrix B that contains only the fractional part of another 3×3 matrix A that contains floating point numbers. Assume that elements of matrix A contains only two digit fractional numbers.   **(8)**

Q.6 a. What is the difference between text and binary files? Discuss the different file operation modes.   **(6)**

    b. Write a program to copy the whole content of source file itself into another file named abc.txt. **(10)**

Q.7 a. What are the different control constructs available in C language? Discuss all the control constructs with their syntax and examples. **(10)**

    b. Write a recursive program to print the sum of each digit of a given integer number. **(6)**

Q.8 a. Define the following (Any **FOUR**):

    (i)   Assembler   (ii) Compiler
    (iii) Interpreter   (iv) Linker
    (v) Loader   **(8)**

    b. How many files are generated during the compilation of a C program? Discuss each of them. Also discuss the role of linker and loader. **(8)**

Q.9 a. Write a program to print the transpose of a 3×3 matrix. **(4)**

    b. What is program documentation? When should program documentation be done? What information should be in the program documentation? **(4+4+4)**