ROLL NO. _____

Code: AE102/AC102/AT102 Subject: COMPUTER CONCEPTS & C PROGRAMMING

AMIETE – ET/CS/IT *{NEW SCHEME}*

Time: 3 Hours **DECEMBER 2015** **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **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.Which of the following is used to manage hardware and input/output operation of the computer?

(A) Operating system
(B) Performance management system
(C) Data-base management system
(D) Language translator

b. Identify the odd term among the following group

(A) Co-axial cable **(B)** Optical fibre
(C) Twisted pair wire **(D)** Microwaves

c. What will be the output of following code?

```
int a = b = c = 3;
printf ("%d %d %d", a,b,c);
```

(A) 333 **(B)** garbage value
(C) 000 **(D)** error

d. Which of the following is a non specific data type in C?

(A) int **(B)** float
(C) char **(D)** void

e. Which of the following function reads a single character as input?

(A) gets() **(B)** getchar()
(C) puts() **(D)** putchar()

f. The % (modulo) operator is used to return the remainder value after dividing two

(A) Real numbers **(B)** Integers
(C) Long double numbers **(D)** All the options

g. Which of the following is not a relational operator in C language?
(A) > **(B)** !
(C) >= **(D)** = =

h. Which of the following is a ternary operator?
(A) > = **(B)** <
(C) ? : **(D)** &&

i. What value will be assigned to 'a' after execution of the following statement if 'a' is initialized with value 5?
a > 2 ? (a + 3) : (a + 4)
(A) 10 **(B)** 5
(C) 9 **(D)** 8

j. The arguments appearing in the function call are referred to as _____ arguments.
(A) formal **(B)** global
(C) local **(D)** actual

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

Q.2 a. Explain the structure of a computer system. **(8)**

b. Write a brief note on information processing life cycle. **(8)**

Q.3 a. Define operating system, explain different functions of operating system. **(6)**

b. Explain the need for networks. **(4)**

c. Write a note on (i) LAN (ii) MAN **(6)**

Q.4 a. Draw a flow chart to find out whether a given number is prime or not. **(4)**

b. With a neat block diagram explain different steps of software development. **(12)**

Q.5 a. Write a program that calculates the sum of all perfect squares between 1 and 1000. **(8)**

b. Write a program in C to determine the greatest common divisor (GCD) of two numbers. **(8)**

Q.6 a. What are the different types of mathematical and logical operators available in C language? Explain precedence of arithmetic operators. **(8)**

b. Write a program to evaluate the roots of a quadratic equation. **(8)**

Q.7 a. What are the different elements of a function definition? With a suitable example explain: **(10)**

(i) Functions with arguments but no return.

(ii) Function with arguments and one return.

b. What are the three rules to pass an array to a function? Using functions write a program to calculate the average of an array of values. The array elements are read from the terminal. **(6)**

Q.8 a. With a flow chart explain the syntax of else if ladder. **(6)**

b. Given are two one dimensional arrays A and B which are sorted in ascending order. Write a program to merge them into a single sorted array C that contains every item from arrays A and B, in ascending order. **(10)**

Q.9 a. The names of employees of an organization are stored in three arrays, namely First-name, Middle-name and Last-name. Write a program to concatenate the three parts into one string to be called name. **(8)**

b. Explain the following string handling functions with an example. **(8)**

(i) Strcat()

(ii) Strcmp()

(iii) Strcpy()

(iv) Strlen()