# Model Question
# HSC Examination 2015

### Subject : Information and Communication Technology (Theory)

Time : 3 Hours                                                                 Full Marks – 75

**Group A (answer any four questions)**               4×10=40

1. What is computer network topology? Network topology can be classified into how many classes? Describe each. 10

2. Discuss the circuit diagram, truth table, operation and characteristics of S-R flip-flop.                                    10

3. (a) What is standard input/output header file called in most versions of C? How is the included within a program?                                                                        04
   (b) A program in C language contains the following statements06
   # include < stdio. h>
   int a = 0177, b = 055, c = 0xa8, d = 0x1ff
   Write a printf function for each of the following groups of the variable or expression.
   (a) a, b, c and d
   (b) (a + b), (c + d)

4. (a) Describe the basic structure of C program.        05
   (b) A program in C language contains the following declaration and initial assignments:
   int i =8, j = 15, c = 97, d = 98
   Determine the value of each of the following expressions using the values initially assigned to the variable for each expression.
   i. $(3^* i – 2^* j)$ % $(2^* d-c)$
   ii. $2^* ((i/5) + (4^* (j-3))$ % $( i + j –2))$

5. Principal of your college ordered you to create a database for students. The database name is RCC and table name is RCC Students. To find any information of any student, Principal ordered to write sql query.
   i. What is query?                                                      01
   ii. Write query to create database and table name.    02
   iii. Write query to insert information (CADET–ID, NAME, ADDRESS) of two student (ABIR, SHOVO)   03
   iv. Write query to find all information of ABIR.          02
   v. Write query to delete all information of SHOVO.     02

6. Principal of your college ordered you to create a website for college. At first he ordered to create a home page of website. He said to use HTML and CSS to create home page. The design of home page is given below.

### Rajshahi cadet college home page

**Menu List**
- Home
- Student
- teacher

**Student information**

Rajshahi cadet college is a well recognized college of Bangladesh.

Click here to see information RCC Students

**Student information table**

| CADET_ID | NAME | ADDRESS |
|----------|------|---------|
| 0001 | X | Rajshahi |
| 0002 | Y | pabna |
| 0003 | Z | Natore |

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   i. What do you mean by HTML and CSS?                    2
   ii. Write the HTML code of above Home page.           08

**Group B (answer any seven questions)**               7×5-35

1. Explain the role of the ICT in education.                 05
2. Describe data transmission using optical fiber.         05
3. Subtract 101101 from 110101 using 2's complement?  05
4. Write the output of the program.                            05
   # include < stdio.h>
   main () {int m = 0;
   printf ("%d",m++);
   Printf ("%d",++m);
   Printf ("%d",m– –);
   Printf ("%d",– –m);
5. Classify and describe the basic structure of HTML.    05
6. (a) What is data security?                                       02
   (b) Shortly explain data encryption process with block diagram.                                                                 03
7. (a) What is encoder?                                            02
   (b) Describe an octal to binary encoder with diagram. 03
8. (a) Define join.                                                    02
   (b) Explain different types of joins.                         03
9. What is difference between local storage and cookies?  05
10. Describe the different type of SQL.                        05