Quarterly Examination 2017-2018

Std. : XI **Full Marks : 35**

Subject : Computer Science (Paper I) **Time : 2hr.**

Answer **all** questions in Part I (compulsory) and **two** questions from Part-II.
All working including rough work, should be done on the same sheet as the rest of the answer.
The intended marks for questions or parts of questions are given in brackets [ ].

PART I

Attempt **all** questions

While answering questions in this Part, indicate briefly your working and reasoning, wherever required.

Question 1 :

Convert following from one base to another as given : [10]

i) $(425)_{10} = (X)_2$

ii) $(24A)_{16} = (X)_{10}$

iii) $(809)_{10} = (X)_{16}$

iv) $(10101)_2 = (X)_{10}$

v) $(A52)_{16} = (X)_2$

Question 2 :

State the output at the end of the following program segment after execution. Show the dry run or working: [5]

```
public class XYZ{
public void show() {
for ( int i = 0; i <=2; ++i ) {
for ( int j = 2; j >=i; j-- ) {
if ( i = = j )
break;
System.out.println ( "i =" + i + "j =" + j );
}
}
}
}
```

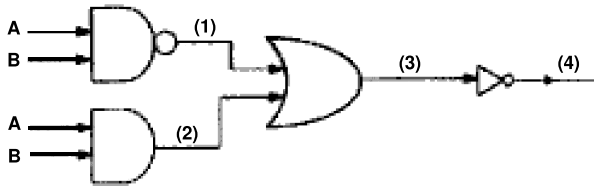
Part II

*Answer any **two** questions.*

Question 1.

(a) Write the dual of following : (Y'+Y) . 0 = 0 [1]

(b) Identify any three logic gates in the diagram. [3]



(c) Verify the following proposition with the help of a truth table : [2]

P + (P'.Q) = P + Q

(d) Write the complement of AB' + A'.C. [2]

(a) Let E = Employee of the store and S = Service of the employee is more than or equal to ten years. Write in terms of E and S.

(i) He/she is an employee of the store and has a service of more than ten years.

(ii) He is an employee of the store and has service less than ten years. [2]

Question 2.

(a) Write the dual of following : Y .X + X'+1 = 1 [1]

(b) Let P = He has fax **and** Q = He uses E-mail, write in terms of P and Q

(i) He has fax and he uses E-mail. [1]

(ii) He has fax but he doesn't use E-mail. [1]

(iii) Neither he has fax nor he uses E-mail. [1]

(c) Write the complement of A.(B + C) . (C' + A') showing relevant reasoning. [2]

(d) Using truth table show that X+(Y.X)' is a tautology. [2]

(e) Draw the logic circuit for(A+B)(C+D).C. [2]

Question 3.

(a) Write the dual of following : (P+Q').R.1=P.R+Q'.R [1]

(b) Let P = He has fax **and** Q = He uses E-mail, write in terms of P and Q

(i) Either he has fax or he uses E-mail. [1]

(ii) He uses fax or E-mail. [1]

(iii) He doesn't have fax but he uses E-mail. [1]

(c) Write the complement of : X.(X'+Y') showing relevant reasoning. [2]

(d) Using truth table show that (X+Y)'=X'.Y'. [2]

(e) Draw the logic circuit for (A+B)'.A. [2]